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Patented Apr. 24, 1900.

J. A. BROWN.

STACK FORMING APPARATUS FOR THRESHING MACHINES.

(Application filed Mar. 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.

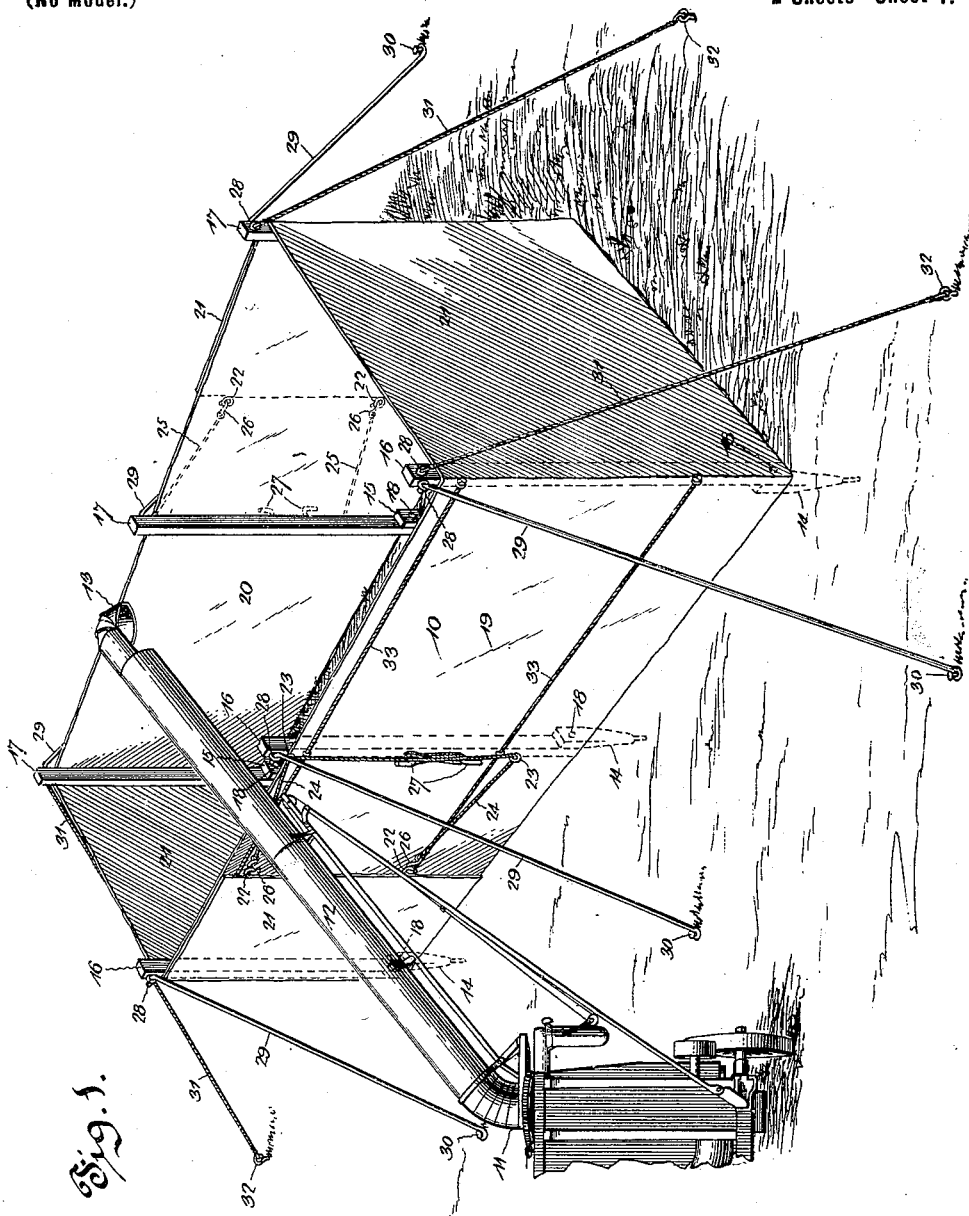


Fig. 1.

Witnesses
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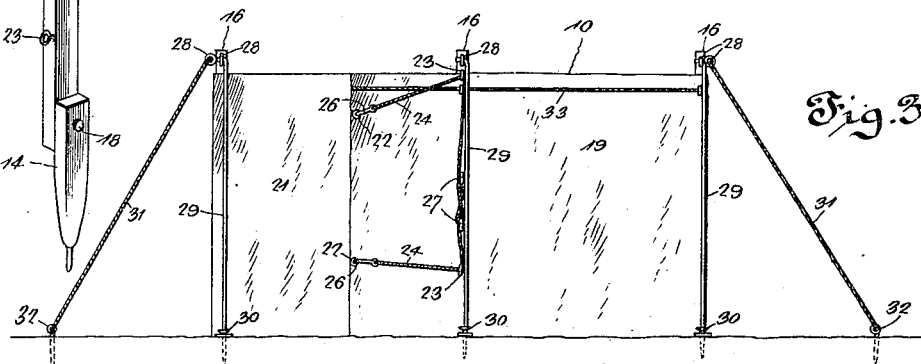
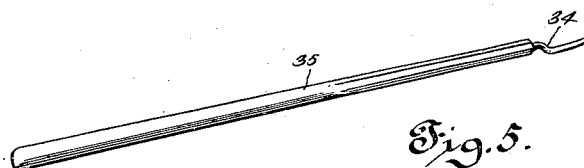
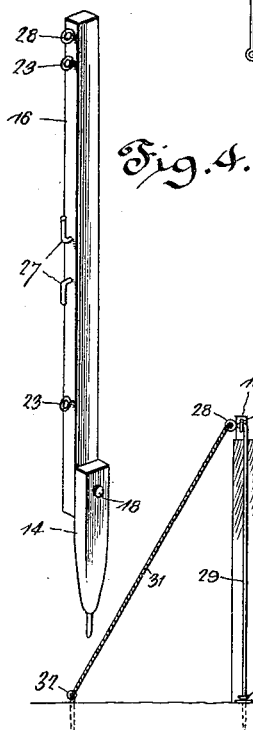
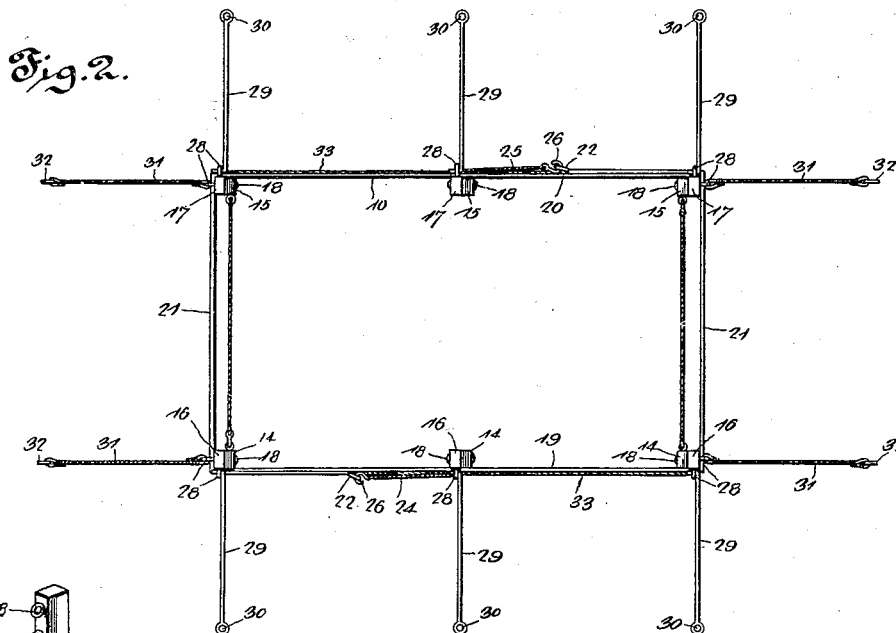
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN A. BROWN, OF IONIA, IOWA.

STACK-FORMING APPARATUS FOR THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 648,020, dated April 24, 1900.

Application filed March 30, 1899. Serial No. 711,129. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. BROWN, a citizen of the United States, residing at Ionia, in the county of Chickasaw and State of Iowa, have invented a new and useful Stack-Forming Apparatus for Threshing-Machines, of which the following is a specification.

My invention relates to improvements in stack-forming apparatus for threshing-machines; and the object in view is to overcome the spreading of straw over a large area of ground and to insure the proper piling of the straw into a stack, thus saving the threshman the expense of one or more attendants for throwing the straw by manual labor into a stack.

It has been the common practice to employ an oscillating pneumatic stacker movable in a horizontal plane, said stacker being equipped at its delivery end with a hood movable in a vertical plane for depositing the straw on the ground in a heap or pile; but it has been found impossible to properly stack the straw, owing to the blast from the stacker-tube or the influence of the wind on the straw subsequent to its delivery, this being especially noticeable in windy weather. Under these conditions it is obvious that the straw will be spread or blown over a large area of ground, and the farmer has been required to throw the straw by manual labor into a stack.

According to my invention I employ, in connection with a delivery apparatus on the threshing-machine, a stack-forming structure, which is arranged in operative relation to such delivery apparatus to receive the straw directly therefrom, and this stack-forming structure serves to confine the straw within itself against the influence of the blast from the pneumatic delivery apparatus and the wind. Said delivery apparatus is controlled automatically to swing from end to end within the limits of the stack-forming structure, and its hood is movable in a vertical plane to direct the straw from side to side of said structure, thus uniformly distributing the straw within the structure, and then the delivery apparatus discharges the straw at the center of the structure to fill out or "cap" the straw-pile.

In the preferred embodiment of the stack-forming structure I employ anchor-stakes,

which carry the jointed or hinged posts that are arranged to sustain the walls of the structure, and these walls are closed by suitable fastenings around the posts and are stayed in place by guy-rods. All the parts of the structure are arranged for manipulation in an expeditious manner to erect the structure within a short time, and said structure may easily be taken down and rolled into a compact compass for storage or transportation.

To accomplish these ends, the invention consists in the novel combination and construction of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a stack-forming apparatus, showing the walled structure in operative relation to the pneumatic delivery mechanism of a threshing-machine. Fig. 2 is a plan view of the stack-forming structure. Fig. 3 is a side elevation thereof. Fig. 4 is a detail perspective view of one of the posts and its anchor-stake. Fig. 5 is a detail view of an adjusting-pole.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

10 designates the closed stack-forming structure, which is arranged in operative relation to the pneumatic delivery apparatus 11 of the threshing-machine. This delivery apparatus is similar to the devices known to the art as "pneumatic" straw-stackers, and in its general features such pneumatic delivery apparatus consists of an oscillating tube 12, which is mounted to rock or turn on a vertical axis, and said tube is equipped at its delivery end with a hood 13, that is adapted to turn on a horizontal axis for movement in a vertical plane. The stacker-tube 12 is arranged to travel back and forth in a horizontal plane, while its hood moves in a vertical plane to change the line of travel of the straw passing through said tube. With the stacker-tube and its movable hood are associated means by which the desired movements are imparted to the tube and the hood; but as the operating mechanisms for the tube and

hood are well known to those skilled in the art I have not considered it necessary to illustrate or describe the same in detail.

The stack-forming structure 10 is erected on the ground below the delivery end of the pneumatic delivery apparatus, and this structure 10 is of such length and width as to inclose an area of ground which is traversed by the delivery apparatus in its operation.

The walled structure 10 has two series of stakes 14 15, which are designed to be driven into the ground in parallel rows, said rows of stakes being at a proper distance from each other and with the individual stakes of each row properly spaced apart. To the series of stakes (indicated by the numeral 14) are pivotally connected one series of posts 16, and to the other series of stakes are connected another series of posts 17. Each post is connected to its anchoring-stake individually by a transverse pivotal bolt 18, which passes through the stake and one end of the post. Each series of posts has a wall of fabric secured permanently to the posts, and the wall for the posts 16 is indicated at 19, while the wall for the posts 17 is designated by the numeral 20. The walls are preferably of fabric, and it has been found that canvas or "duck" is a proper material for this purpose. Each wall has one end extended beyond the series of posts to form a flap 21, and on the free edge of this flap are provided the rings, loops, or eyes 22.

In the embodiment of the invention represented by the drawings each series of posts 16 or 17 consists of three posts, and to the middle post of the series are secured eyebolts 23, with which are adapted to engage the fastening cords or ropes 24 25. Each fastening-cord is provided at one end with a hook 26, adapted to be inserted in one of the eyes 22 on the flaps 21, and the free end of the cord is wrapped on the cleat 27, secured to the same post that the eyebolts 23 are fastened to. Each post 16 or 17 is furthermore provided with an eyebolt 28, which is firmly secured to the upper end thereof, and with this eyebolt is engaged the hooked end of a brace-rod 29. The lower end of the brace-rod rests on the ground and is fastened in place by an anchor-pin 30, which is driven into the ground. The structure when erected is held in place by the brace-rods 29 and the guy-ropes 31. The guy-ropes are attached to eyebolts 28 on the upper ends of the corner-posts, and said ropes are anchored to the ground by means of the pins 32. To limit the movement of the posts which are pivoted to the anchor-stakes, I employ the stay-ropes 33, one of which is fastened to the posts of each series 16 or 17 near the upper ends thereof.

In erecting the stack-forming structure of my invention the series of anchor-stakes 14 15 are driven into the ground by sledges or other suitable implements, and these stakes are arranged in parallel rows and at a proper distance apart. During the operation of driv-

ing the anchor-stakes the posts which are pivoted thereto lie in substantially-horizontal positions on the ground, and the stakes are turned on the bolts 18 to vertical positions, so that the upper ends thereof are exposed to receive the impact of the driving implement. After each series of stakes shall have been driven into the ground the operator proceeds to raise the side wall of the structure; but previous to raising the posts to the upright positions the brace-rods 29 have their hooked ends engaged with the eyebolts 28 on the posts, and the guy-ropes 31 are fastened to the eyebolts on the corner-posts. The side wall and the series of posts are now in condition to be raised, and this is effected by lifting the brace-rods 29, so as to raise the posts and the fabric wall attached thereto. It will be understood that the fabric walls, with the two series of posts, are raised successively to form the sides of the structure, and when each side is in proper position the guy-ropes 31 are fastened by the anchor-pins 32, and the brace-rods 29 are held in position by the anchor-pins 30. During the operation of raising each side of the structure the stay-rope 33 prevents movement of the posts on their jointed connections with the anchor-stakes, and the guy-ropes 31 also stay the corner-posts in proper positions. After having properly erected the sides of the structure the operator proceeds to adjust the flaps 21 to close the ends of the structure. This may be conveniently effected by engaging the hooked pin 34 on the end of an adjusting-pole 35 with the upper ring or eye 22 on the flap 21, thus enabling the operator to conveniently carry the flap from one side or wall to the other side. The fastening-cords 24 on one wall or side 19 of the structure have their hooks 26 engaged with the eyes or rings on the flap 21 of the wall 20, and in like manner the fastening-cords 25 on the wall 20 have their hooks 26 engaged with the rings or eyes on the flap 21 of the wall 19. It will thus be seen that the fastening-cords on one wall engage with the flap of the other wall, and these fastening-cords are drawn taut in order to make the flaps overlap the walls and securely close the structure at the ends thereof. The fastening-cords are wrapped around the cleats 27 on the central posts, and the flaps and cords are thus properly held in position.

The walled structure having been properly erected below the movable pneumatic delivery apparatus of the threshing-machine, such apparatus is adjusted to travel within the limits of the structure and to deposit the straw therein. As the delivery apparatus oscillates in a horizontal plane the straw is distributed from end to end of the walled structure, and the hood 13 of the delivery apparatus may be raised or depressed more or less to deflect the straw from side to side of the structure, thereby insuring uniformity in the distribution of the straw throughout the length and width of the closed structure.

The straw is prevented by the structure from being blown over the ground either by the blast from the pneumatic delivery apparatus or by the wind, and after the structure shall have been filled nearly to its capacity the delivery apparatus is brought to a position over the middle of the structure in order to deposit the straw upon the mass contained within said structure, and thereby fill out or cap the straw-stack.

The construction of the walled stack-forming structure, as hereinbefore recited, provides for the convenient and rapid erection of the structure below the delivery apparatus, and it is obvious that the stakes may easily be driven, the sides raised, and the end flaps adjusted and fastened. In like manner the structure may be taken down and dismantled. Each side of said structure may be rolled upon itself for compact storage and easy transportation. The provision of the means for staying the structure prevents it from being blown down by the wind, and the employment of said structure secures the proper formation of the stack, which will retain its shape on the removal of the structure.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What I claim is—

1. A closure for stack-forming purposes

comprising a flexible fabric wall, posts arranged at intervals and individually and permanently secured to said wall and relatively positioned and braced thereby, anchors pivotally attached to the lower ends of the posts and adapted to be driven into the ground, and guys connected to the posts, substantially as and for the purpose specified.

2. A stack-forming structure consisting of two series of posts, a fabric wall secured to each series of posts and having one end thereof extended into a flap, anchor-stakes pivoted to the bottom of each post, fastening-cords supported on one post of each series and adapted to engage with the flap on the other wall and guys connected to the upper ends of said posts, substantially as described.

3. A stack-forming structure consisting of two series of posts, fabric walls each united to the posts of one series and having the extended flaps, fastening-cords attached to one post of each series and provided with hooks to engage with the flaps, brace-rods fastened detachably to the posts and having anchoring-pins, and the guy-rods fastened to the corner-posts, substantially as described.

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

JOHN A. BROWN.

Witnesses:

A. H. SHAFFER,
F. W. BROWN.