COCHRAN & GAAR.

Straw Stacker.

No. 48,519. Patented July 4, 1865.

Fig. 1.

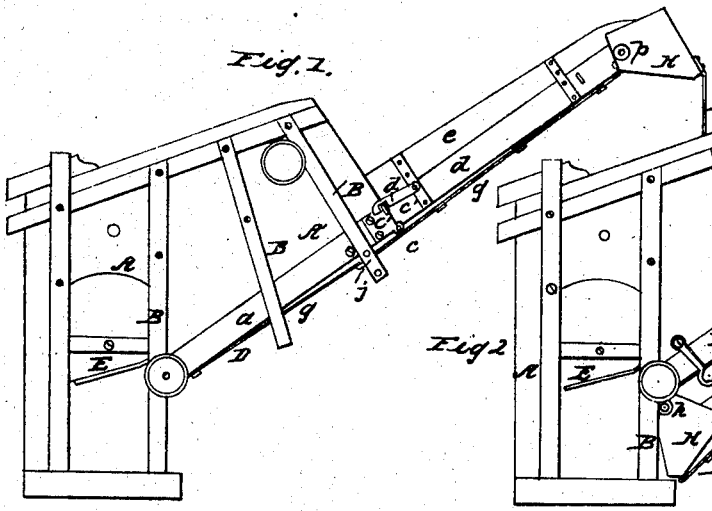


Fig. 2

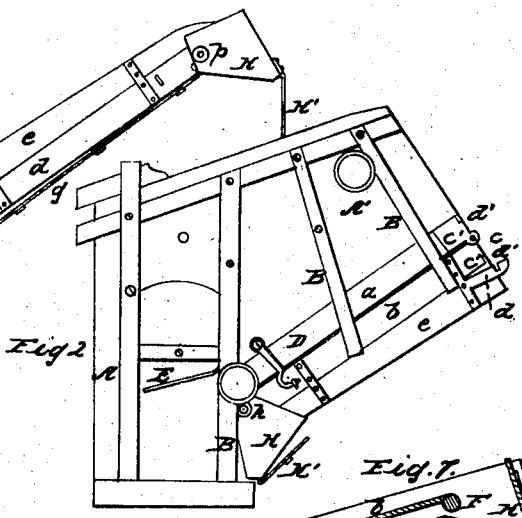


Fig. 7.

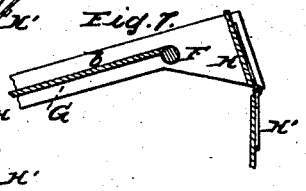


Fig. 3.

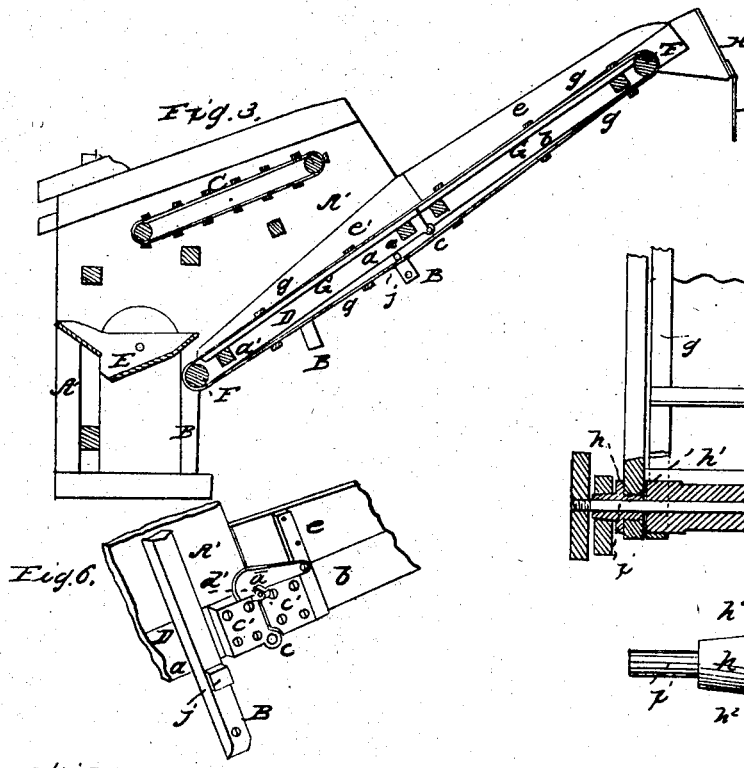


Fig. 4.

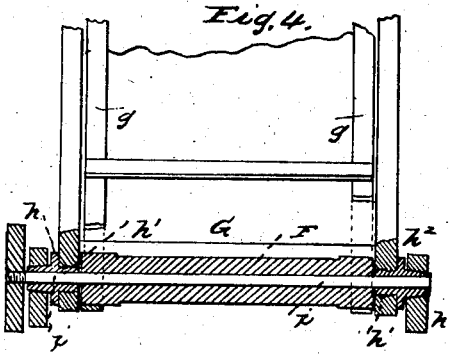
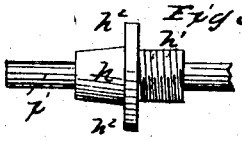


Fig. 6.

Fig. 5



Witnesses:

R. F. Campbell

E. L. Walker

Inventor:

S. M. Cochran

A. Gaar

by his atty.

Munn & Co

UNITED STATES PATENT OFFICE.

A. GAAR AND D. M. COCHRAN, OF RICHMOND, INDIANA.

IMPROVEMENT IN MACHINES FOR STACKING STRAW.

Specification forming part of Letters Patent No. **48,519**, dated July 4, 1865.

To all whom it may concern:

Be it known that we, A. GAAR and D. M. COCHRAN, of Richmond, Wayne county, State of Indiana, have invented certain Improvements in Machines for Elevating and Stacking Straw; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation of our stacker arranged for operation. Fig. 2 shows the stacker folded up. Fig. 3 is a longitudinal section through Fig. 1. Fig. 4 shows the manner of pivoting the elevator to the frame of the thrashing-machine. Fig. 5 shows one of the flanged tubular bearings for pivoting the elevating contrivances to the thrasher. Fig. 6 is a perspective view, showing the manner of connecting the upper hinged section of the elevator to its lower section. Fig. 7 is a modification of the guards at the upper end of the upper section of the elevator.

Similar letters of reference indicate corresponding parts in the several figures.

The main object of this invention is to conduct straw from the straw-carrier and chaff from the riddle of a thrashing-machine to a suitable height to deliver it in stacks by means of a machine which will protect the straw during its upward movement from the influence of wind, and which can be folded up so as to occupy very little space when not in immediate use or during transportation.

Another object of our invention is to provide for elevating or depressing the highest end of an elevator which employs endless belts and folding sections without the necessity of changing or adjusting the length of the driving-belts of stacker to accommodate them to the change of position.

Another object of our invention is to provide for directing the straw downward upon the stack when the former reaches its highest point by means of an adjustable guard and a hinged apron, which latter also protects the falling straw from blasts of wind, all as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, A represents the rear end of a thrashing-machine to which the stacking contrivances are applied.

B B are beams, which constitute the frame for supporting the side-boards which inclose the straw-carrier C, and E is the shoe for separating the chaff from the grain after the operation of thrashing.

We have not represented an entire thrashing-machine in the drawings for the reason that our invention is applicable to thrashing contrivances of various descriptions.

D represents one section of the elevator-frame, which consists of two side-boards, *a a*, of the required width, connected together and braced in lines parallel to each other by means of the transverse bars *a' a'*. The width of this frame is equal to the width of the box A', which is formed by the side-boards at the rear end of the thrasher, and the length of this frame or section is equal to the distance from the vertical post B to the extreme rear end of the box A', as shown in Figs. 1, 2, and 3.

The upper section, *b b*, of the elevator-frame is constructed and braced substantially as above described for the lower section, *a*, and if other sections are required for giving greater height to the upper end of the elevator, they will be constructed as described. The two sections D *b* are hinged together at *c* by means of hinges whose leaves *c' c'* are nearly, if not quite, equal in width to that of the side-boards to which they are secured. The hinge or point of movement is located at the lower edges of said frame-sections, so that the upper section may be folded under the lower section, as represented in Fig. 2. When the sections D *b* are in a right line with each other they are secured in this position by means of a hook, *d*, having a notch cut into it, which receives the lugs *d' d'* that are formed on the upper edges of the hinges, as shown in Figs. 1 and 6. The lugs *d' d'* may be perforated, as shown Fig. 6, to receive bolts for making a more rigid fastening. On both sides of both sections of the elevator-frame are guard-boards *e e'*, which project up so as to form fenders or guards, to prevent the straw in its upward passage from falling off the machine at such points, and also to prevent the straw from being blown off at the side of the machine.

F F' are horizontal shafts, which are arranged

at or near the extremities of the elevator-frames, as shown in Fig. 3, for the purpose of receiving and keeping taut the bands *g g* of the endless straw-elevator. These bands or belts are arranged near the ends of the drums or shafts F F′, and provided with slats arranged transversely across the frames which sustain said shafts and secured to the belts, as shown in Fig. 4.

Any form of endless apron which will elevate straw may be stretched over the drums F F′ and used instead of the one shown.

In a plane touching the upper points of the drums F F′ are secured boards G G′, which are used to prevent the straw or chaff from falling through the elevator during its upward movement over these boards.

The lower end of the lower section of elevator-frame is connected by tubular bearings *h h* to the vertical posts of the box or housing A′, as shown in Fig. 4. These tubular bearings are formed with a screw portion, *h′*, on each, and also flanges *h²*, as shown in Fig. 5, and they are screwed into the sides of the section *a*, so that their bearing portions can be supported so as to oscillate freely in boxes applied to the posts B. Through these tubular bearings and through the axis of the drum F passes a rod, *i*, which is affixed to, so as to turn, this drum, and on one end of the rod *i* a belt-wheel is affixed, over which a belt passes that gives motion to the straw-elevator.

It will be seen from the above description that the frame or sections of frame are pivoted at the lower end to the thrasher-frame by short bearings, through the axis of which passes the shaft which rotates the drum F; hence the axis of motion of the elevator-frame and the lower drum which carries the belts of the elevator are in common, and any adjustment of the upper end of the elevator-frame in a vertical plane will not affect the tightness of the driving-belt.

The lower edges of the housing-boards of the rear end of the thrasher incline, as shown in Figs. 1, 2, and 3, so that the highest degree of elevation desired may be given to the elevator. A rod, *j*, passes transversely beneath the elevator, and has its support in the inclined beams B B of the housing A′. When it is required to lower the upper end of the elevator the rod *j* is removed and inserted into lower holes of the beams B. When the upper end of the elevator is depressed there would be left an opening between its lower section and the lower inclined edges of the box A′, through which the straw and chaff would be blown out of the machine. To guard against this the side-boards *e′*, which are secured to the frame of section D, fill up said openings when the elevator is depressed.

At the upper end of the upper section of the elevator is a deflector, H, which is open at its bottom and top, but closed at its sides and highest end, as shown in Figs. 1 and 3. The straw, upon arriving at the upper end of the upper section of the elevator-frame, abuts against the inclined side of the deflector or guard, which directs the straw downward upon the stack and also prevents the straw from being blown back.

To the lower edge of the deflector an apron, H², is hinged for the purpose of preventing the wind from blowing the falling chaff and straw about. The deflector and its hinged apron may be made of light boards, or they may be made of thin sheet metal. The deflector is hinged or pivoted at *p* to the upper end of the upper section of the elevator, as shown in Figs. 1 and 3, so that the deflector, with its apron, may be turned up in the position shown in Fig. 2 when the elevator is folded up.

The deflector-plate may be secured to the side-boards of the upper section, *b*, by extending said arms beyond the upper drum, as shown in Fig. 7. In this case the apron only is hinged.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a folding straw-stacker, which is constructed of sections, with the hanging posts or beams B and rod *j*, when these are used for confining and supporting the stacker in transportation or in operation, substantially as herein described.

2. The combination of the guard or side boards *e′* of the section D with an adjustable stacker and the box A′ of a thrashing-machine, substantially as described.

3. A hinged or pivoted deflector, H, applied at the discharging end of the stacker, substantially as described.

4. The hinged apron H′, in combination with a contrivance for protecting the straw from the wind at its point of discharge from the stacker, substantially as described.

5. A folding sectional stacker which is susceptible of being elevated or depressed without leaving wind-openings at the side of the lowest section, and which is arranged and combined with the rear end of a thrashing-machine in such manner that it can be folded beneath the same, substantially as described.

A. GAAR.
D. M. COCHRAN.

Witnesses:
LEWIS D. STUBBS,
C. L. TAYLOR.