Dec. 12, 1950 C. MATTHEWS ET AL 2,533,676

BARN CLEANING APPARATUS

Filed Nov. 7, 1949

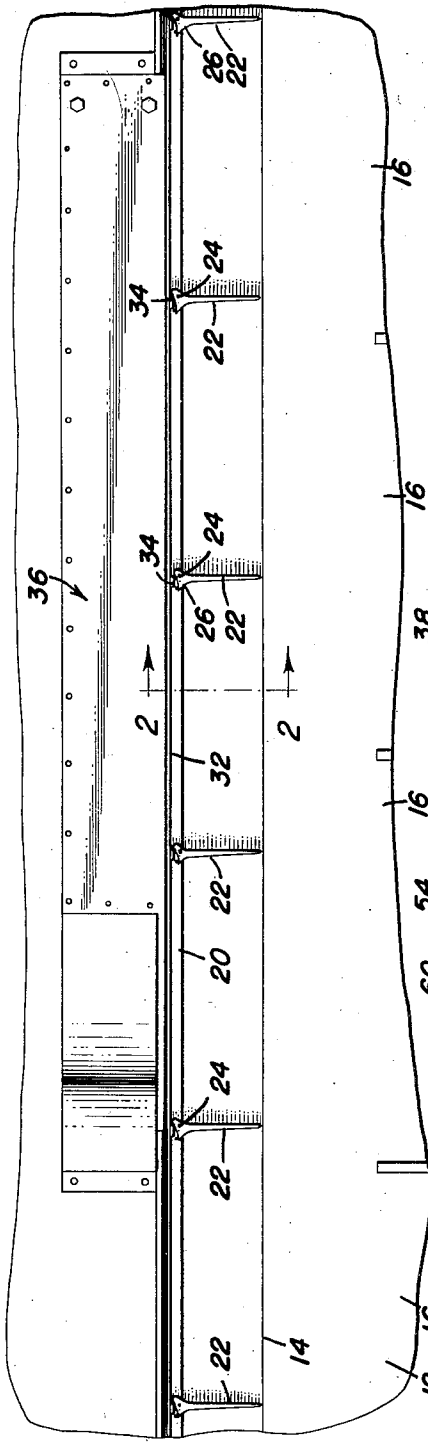


Fig. 1.

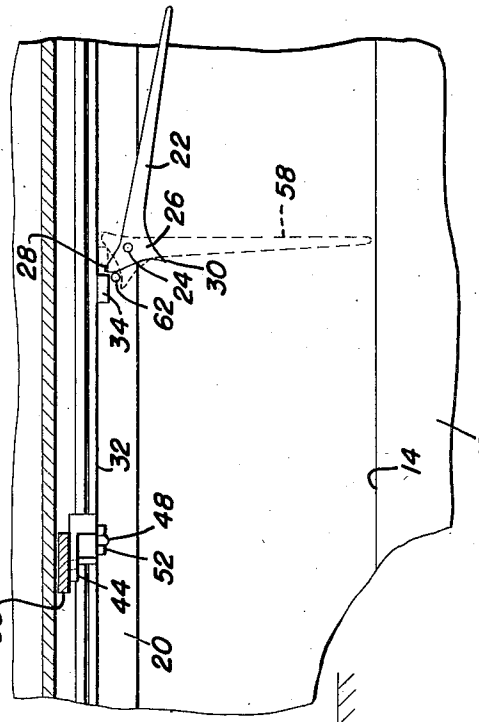


Fig. 3.

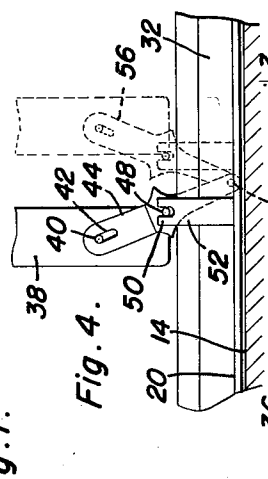


Fig. 4.

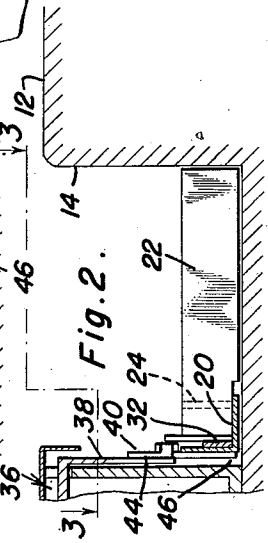


Fig. 2.

Charles Matthews
Harvey M. Wenger
INVENTORS.

BY Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

Patented Dec. 12, 1950 2,533,676

UNITED STATES PATENT OFFICE

2,533,676

BARN CLEANING APPARATUS

Charles Matthews and Harvey M. Wenger,
East Earl, Pa.

Application November 7, 1949, Serial No. 125,976

3 Claims. (Cl. 198—224)

1

This invention relates to new and useful improvements and structural refinements in apparatus for cleaning barns, and in particular, this invention concerns itself with certain improvements made in the barn cleaning apparatus disclosed in our co-pending application Serial No. 87,472, filed on April 14, 1949.

While experimenting with the invention constructed in accordance with the teachings of our earlier patent application, we found that the same lends itself to certain improvements, and it is, therefore, the principal object of the instant invention to provide a device of the character herein described, wherein such improvements are embodied.

Generally speaking, our earlier invention resided in the provision of a reciprocable member in the manure collecting channel of a barn, which reciprocable member carried a plurality of oscillatory sweeping elements. These elements, being disposed substantially at right angles to the reciprocable member, effected the sweeping or cleaning operation when the member was slid in one direction, but upon the return stroke of the member, the cleaning elements folded themselves against the member so as to bypass the material swept during the preceding, working stroke.

In turn, the sweeping elements again assumed their working positions at right angles to the actuating member by the frictional engagement of the elements with the material being swept, but it was found that this particular action of the sweeping elements was not always dependable, since there was nothing to positively urge the elements into their working positions. Accordingly, one of the principal features of the instant invention resides in the provision of such means for positively urging the sweeping elements to their operative positions, these means being fully automatic and responsive to the sliding of the actuating units at the commencement of the working stroke.

With the above more important objects and features in view, and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a fragmentary top plan view of the invention;

Figure 2 is a cross-sectional view, taken substantially on the plane of the line 2—2 in Figure 1;

2

Figure 3 is a sectional view, taken substantially on the plane of the line 3—3 in Figure 2, and

Figure 4 is a fragmentary side elevational detail showing the arrangement of the actuating means used in the invention.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention resides in a barn cleaning apparatus such as is disclosed in our earlier application Serial No. 87,472, filed on April 14, 1949, wherein the floor 12 of a barn is provided with the usual manure collecting channel 14 extending past the stalls 16, as will be clearly apparent.

A reciprocable, preferably channel-shaped member 20 is slidable longitudinally in the channel 14 and is disposed at one side of the channel as shown in Figure 2. Moreover, a plurality of swingable sweeping or cleaning blades 22 are pivotally attached as at 24 to the member 20, to which end the pivotally mounted portions of the blades 22 may assume the form of enlarged heads 26 affording a toe 28 and a heel 30, which will be hereinafter again mentioned. (See Figure 3.)

A bar 32 is disposed in parallelism to and is reciprocable independently of the member 30, it being noted that this bar is provided with a plurality of lugs of detents 34, each of which is operatively engageable with the toe 28 of one of the blades 22.

The general reference character 36 designates an actuating unit which is preferably disposed below floor level at one side of the channel 14 and, as in our earlier application, includes suitable mechanism for imparting reciprocating movement to a carriage 38, a portion of which projects downwardly into the channel 14 as shown. A pin 40, provided on the carriage 38, is movable within the limits of a slot 42 formed in one end portion of a connecting link 44, the remaining end portion of this link being pivoted as at 46 to the actuating member 20. However, the intermediate portion of the link 44 is substantially thickened and is provided with a laterally projecting pin 48 which constantly engages a slot or notch 50 in an upstanding bracket or strap 52 secured to the bar 32 as shown in Figure 4.

When the invention is placed in use, the carriage 38 is reciprocated by the mechanism 36 and, assuming the device to be shown in the position illustrated in Figure 4, movement of the carriage 38 in the direction of the arrow 54 will

cause the link 44 to swing about the pivot 46, thus permitting the member 20 to remain stationary while the bar 32 is slid (through the medium of the pin 48) in the direction of the arrow 54 to the position illustrated by the phantom lines 56. During this action the detents or lugs 34 will engage the heels 28 of the respective blades 22 and, with the member 20 remaining stationary, the blades 22 will be positively swung to their operative positions at right angles to the member 20, as illustrated at 58. (See Figure 3.) Thereupon, continued sliding movement of the carriage 38 in the direction of the arrow 54 will cause the member 20 to slide together with the bar 32 (the pin 40 having reached the upper end of the slot 42) and as a result, the member 20, the bar 32 and the blades 22 will be slid in the direction of the arrow 54, causing the blades 22 to sweep the channel 14.

However, when the carriage 38 commences upon its return stroke as indicated in Figure 4 by the arrow 60, the detents 34 will be disengaged from the heel 28 and, when the member 20 is ultimately slid on its return stroke as shown by the arrow 60, the blades 22 will be permitted to automatically fold themselves toward the member 20 as illustrated by the full lines in Figure 3.

If desired, suitable stop pins 62 may be provided on the member 20 (see Figure 3) for selective engagement by the toes 28 and heels 30 of the several blades 22 when the blades are in their retracted and in their operative positions respectively.

It is believed that the advantages and use of the invention will be clearly apparent from the foregoing disclosure and accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

1. In a barn cleaning apparatus, the combination of a reciprocable member slidable longitudinally in a manure collecting channel, a plurality of channel sweeping blades pivoted at longitudinally spaced points to said member and swingable from an operative position substantially at right angles to the member into a folded position adjacent said member, a bar parallel to and reciprocable independently of the member, means provided on said bar and operatively engageable with said blades whereby the latter may be positively swung to their operative position by reciprocation of the bar when said member is stationary, a reciprocable carriage, a pin projecting from said carriage, a connecting link pivoted at one end thereof to said member and provided in its other end portion with a slot to receive said pin, and a pivot element connecting said bar to an intermediate portion of said link, whereby said bar may be reciprocated independently of said member.

2. In a barn cleaning apparatus, the combination of a reciprocable member slidable longitudinally in a manure collecting channel, a plurality of channel sweeping blades pivoted at longitudinally spaced points to said member and swingable from an operative position substantially at right angles to the member into a folded position adjacent said member, a bar parallel to and reciprocable independently of the member, detents provided on said bar, an enlarged head provided at the pivoted end of each blade and affording a toe and a heel which project to relatively opposite sides of the blade, the toes of said blades being operatively engageable by the respective detents whereby the blades may be positively swung to their operative position by reciprocation of the bar when said member is stationary, and common means for independently reciprocating said member and said bar.

3. The device as defined in claim 2 together with stop pins provided on said member and engageable by the toes and heels of the respective blades when the latter are in their folded and operative positions respectively.

his
CHARLES × MATTHEWS.
mark
HARVEY M. WENGER.

Witnesses to mark:
E. H. MILLER,
E. M. HENNING.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
961,486	Dewey	June 14, 1910
2,467,988	Petraske	Apr. 19, 1949