C. L. MANSFIELD.

THRESHING MACHINE SCREEN.

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1,092,222.

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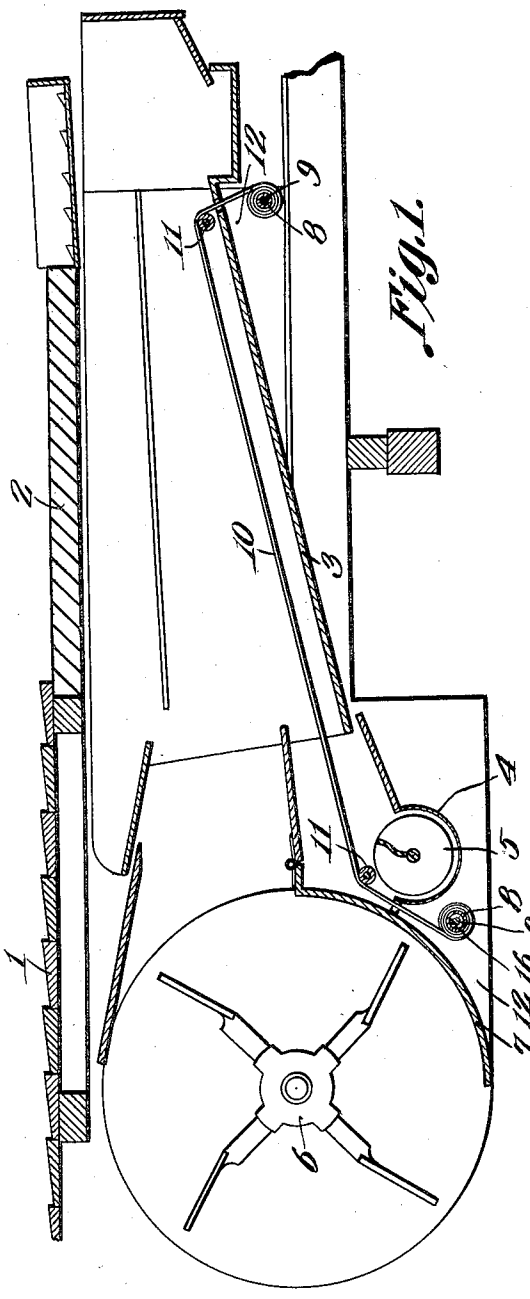


Fig. 1.

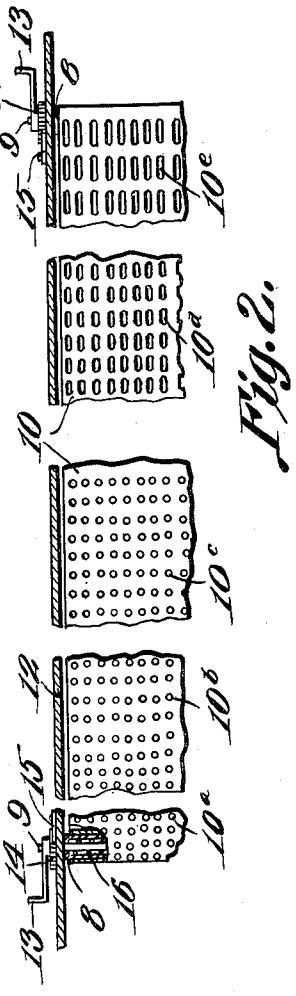


Fig. 2.

Witnesses

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CHARLES L. MANSFIELD, OF RAVENNA, MICHIGAN.

THRESHING-MACHINE SCREEN.

1,092,222. Specification of Letters Patent. Patented Apr. 7, 1914.

Application filed May 31, 1913. Serial No. 771,123.

To all whom it may concern:

Be it known that I, CHARLES L. MANSFIELD, a citizen of the United States, residing at Ravenna, in the county of Muskegon and State of Michigan, have invented a new and useful Threshing-Machine Screen, of which the following is a specification.

The present invention appertains to a screen for threshing or cleaning machines, clover hullers, fanning mills, grain separators, and the like, and aims primarily to provide a novel and improved adjustable screen adapted to accommodate various sizes and kinds of grain or other material to be separated.

It is also the object of the present invention to provide a device of the nature indicated which shall be applicable to various machines as above indicated, and which shall be so constructed and operable as to permit various kinds of grain to pass therethrough and to cause the larger objects, such as chaff or other extraneous matter to pass off.

With the foregoing general objects outlined, and with other objects in view, which will be apparent as the description proceeds, the present invention resides in the combination and arrangement of parts and in the details of construction described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention has been illustrated in its preferred embodiment in the accompanying drawing, wherein:—

Figure 1 is a fragmental section of a threshing machine embodying the present improvement. Fig. 2 is a sectional detail.

Although the present invention has been illustrated as applied to a threshing machine, it is to be understood, at the outset, that the same may be applied to various contrivances, as will be apparent to those skilled in the art.

The threshing machine, as illustrated, is of the standard construction, and embodies the straw rack 1, and chaffer 2, below which is disposed the shoe or inclined chute 3 leading to the transverse trough 4 in which the auger or screw conveyer 5 is rotatable. A fan or blower 6 is disposed in advance of the conveyer 5, and is inclosed by the case 7 which has its outlet directed over or through the shoe or chute 3 to carry off the chaff or lighter particles through the rear end of the machine. It is to be understood that the shoe or chute 3 is reciprocated or vibrated by any suitable means, which need not be illustrated or described in detail, the same being common or well known in the art.

In carrying out the present invention, there is provided a suitable frame 12, which may be attached to the shoe or chute 3 so as to reciprocate therewith or which may be reciprocated or vibrated independently of the shoe or chute, whichever is desirable. A pair of drums or spools 8 are carried by the respective ends of the frames 12, the drums being mounted on the transverse shafts 9 journaled through the sides of the frame 12. The rear drum 8 is disposed below the upper or rear end of the shoe or chute 3, while the forward drum 8 is disposed between and slightly below the conveyer 5 and fan case 7, the rear drum 8 being keyed or secured rigidly upon the respective shaft 9, and the forward drum 8 being mounted loosely upon the respective shaft.

An apron or belt 10, which is preferably constructed of flexible sheet metal, although other material, such as wire screening, may be employed, is attached at its ends to the respective drums 8. The belt or apron 10 is of considerable length, and is provided with several distinct groups or clusters of different sized perforations, such as 10^a, 10^b, 10^c, 10^d, and 10^e, the perforations of the several groups being graduated or ranged in size so as to accommodate various kinds of grain. Each group of perforations covers a sufficient area, so that any group of perforations may be exposed between the drums, the ends of the apron or belt being wound upon the respective drums. Guide rollers 11 are rotatably carried by the frame 12 above the conveyer 5 and the upper end of the shoe or chute 3, respectively, and over which the apron or belt 10 passes, so that the portion or run of the apron or belt between the guide rollers 11 may be drawn taut and maintained in such condition.

A crank 13 is secured to one end of each of the shafts 8, as is also a ratchet wheel 14, pawls or dogs 15 being carried by the frame 12 to coöperate with the ratchet wheels to normally constrain the end portions of the apron from unwinding.

The forward drum 8 is made hollow and incloses a suitable coiled spring 16, which surrounds the shaft 9, and which has its

respective ends attached to the respective shaft and drum, so that when the respective shaft 9 is rotated in the proper direction, the spring 16 may be brought under the tension preferred so as to rotate, or tend to rotate, the respective drum 8 in such a direction so as to wind up the apron or belt 10.

From the foregoing taken in connection with the drawing, it will be evident that the present attachment is comparatively simple, compact and inexpensive, and that the same may be readily applied to various threshing machines or the like, without necessitating radical alterations.

In operation, the slack apron or belt 10 is wound upon the rear drum 8, the respective dog or pawl 15 engaging or coöperating with the ratchet wheel 14 to lock the apron against unwinding, the forward shaft 9 then being rotated so as to wind up the spring 16 to give the forward drum 8 the requisite tension. The forward dog or pawl 15 in engaging the respective ratchet wheel 14 will prevent the forward shaft 9 from unwinding. When the device is in this condition, any group or set of perforations may be brought into operation, by releasing the rear dog 15, which will permit the forward drum 8 to rotate so as to wind up the apron until the desired group or set of perforations is brought into position between the guide rollers 11 above the chute 3. The operation of the threshing machine or other contrivance, is the same as usual, and needs no lengthy description, it being noted that as the material drops onto the apron or belt 10, the particular grain will be permitted to precipitate or pass through the perforations of the apron 10. The grain which passes through the apron 10 will strike and travel down the chute 3 to the conveyer 5, which will deliver it to the side of the machine, as is customary. The chaff will be carried off by the air current created by the fan or blower 6, as usual, the heavier particles which are prevented from passing through the perforations of the apron 10, being shaken down the apron 10 to its lower or forward end, whence they are delivered below the machine.

It is evident that any group of perforations may be readily brought into play by either winding up or releasing the rear drum 8, the spring 16 being continually under tension so as to draw the apron 10 forwardly, it being noted that the spring 16 is wound up as the apron is drawn forwardly. The various groups of perforations 10^a, 10^b, etc., are designed to permit various sizes of grain to pass therethrough, in order that the screen may be adjusted to suit the circumstances.

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

1. A separator for threshing machines embodying a frame, a plurality of drums carried thereby, an apron attached at its ends to the drums, and having groups of different sized perforations which may be brought into operative position between the drums, a spring for winding up one of the drums, and means coöperating with the other drum for normally constraining it from unwinding.

2. A separator for threshing machines embodying a frame, a pair of shafts carried thereby, a drum secured rigidly on one shaft, a hollow drum mounted loosely on the other shaft, a spring disposed within the last mentioned drum and attached at its ends to the respective shaft and drum, means for locking each of the shafts against retrograde movement, and an apron attached at its ends to the drums and having a plurality of groups of different sized perforations.

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

CHARLES L. MANSFIELD.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."