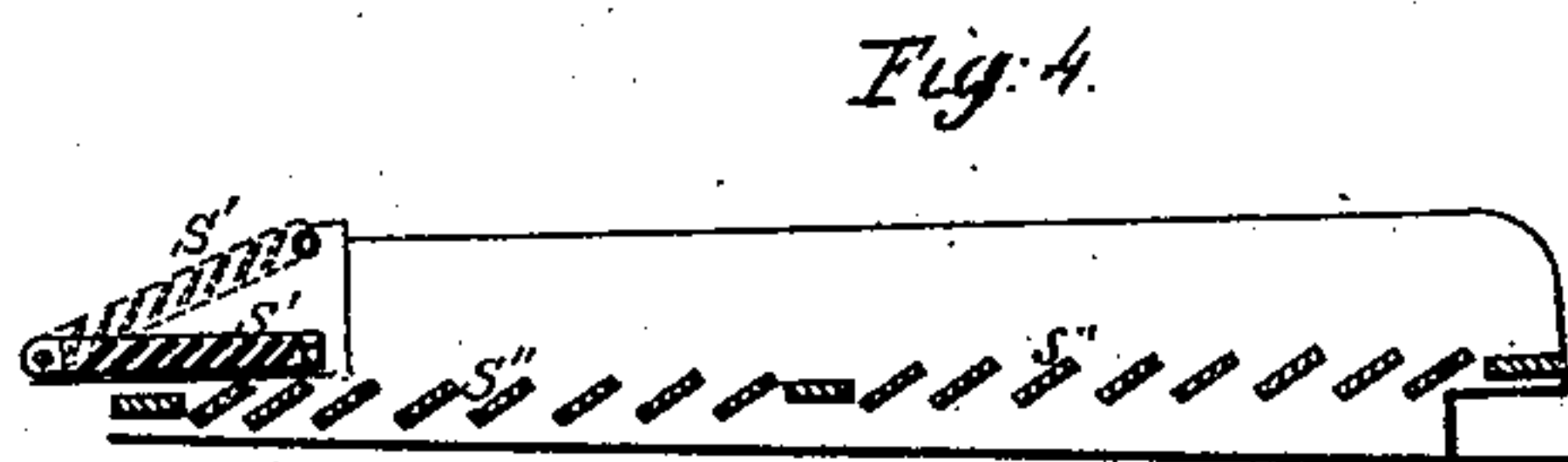
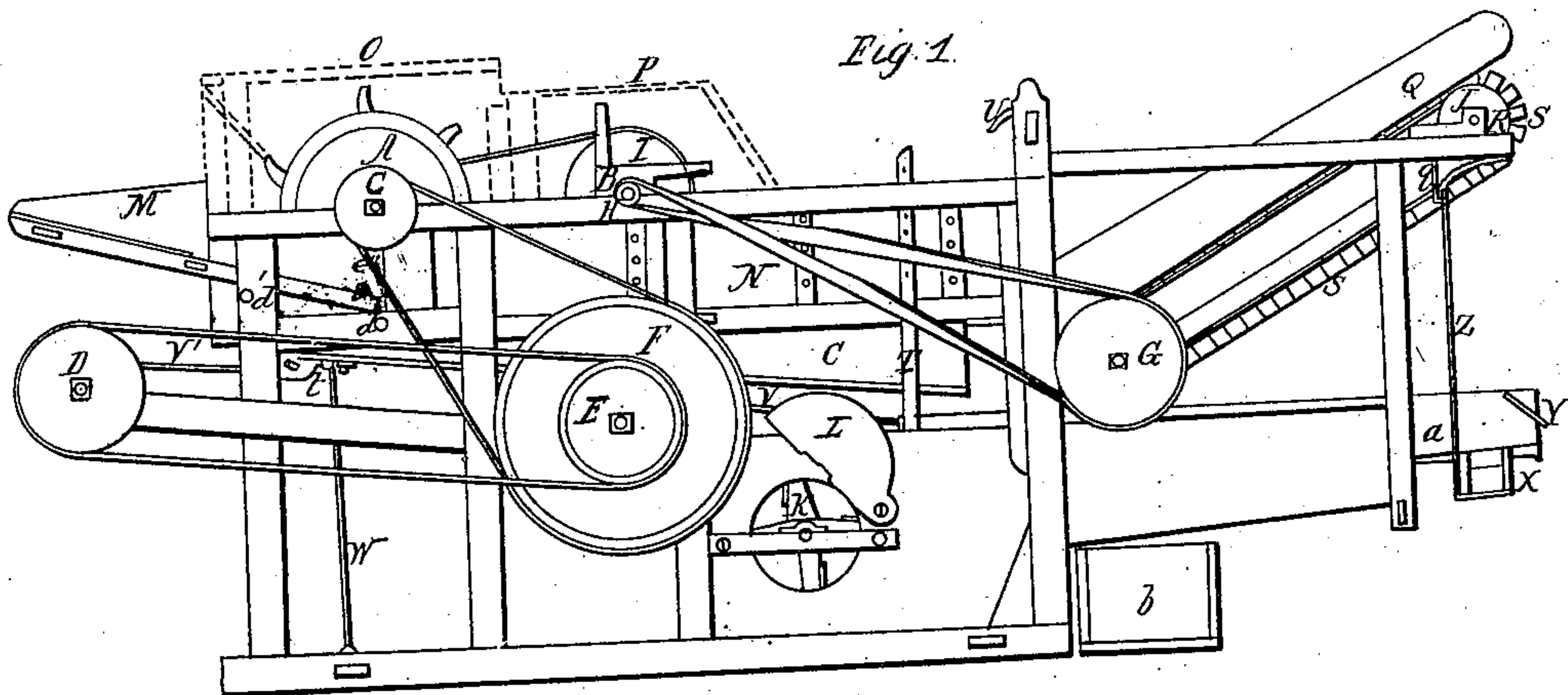
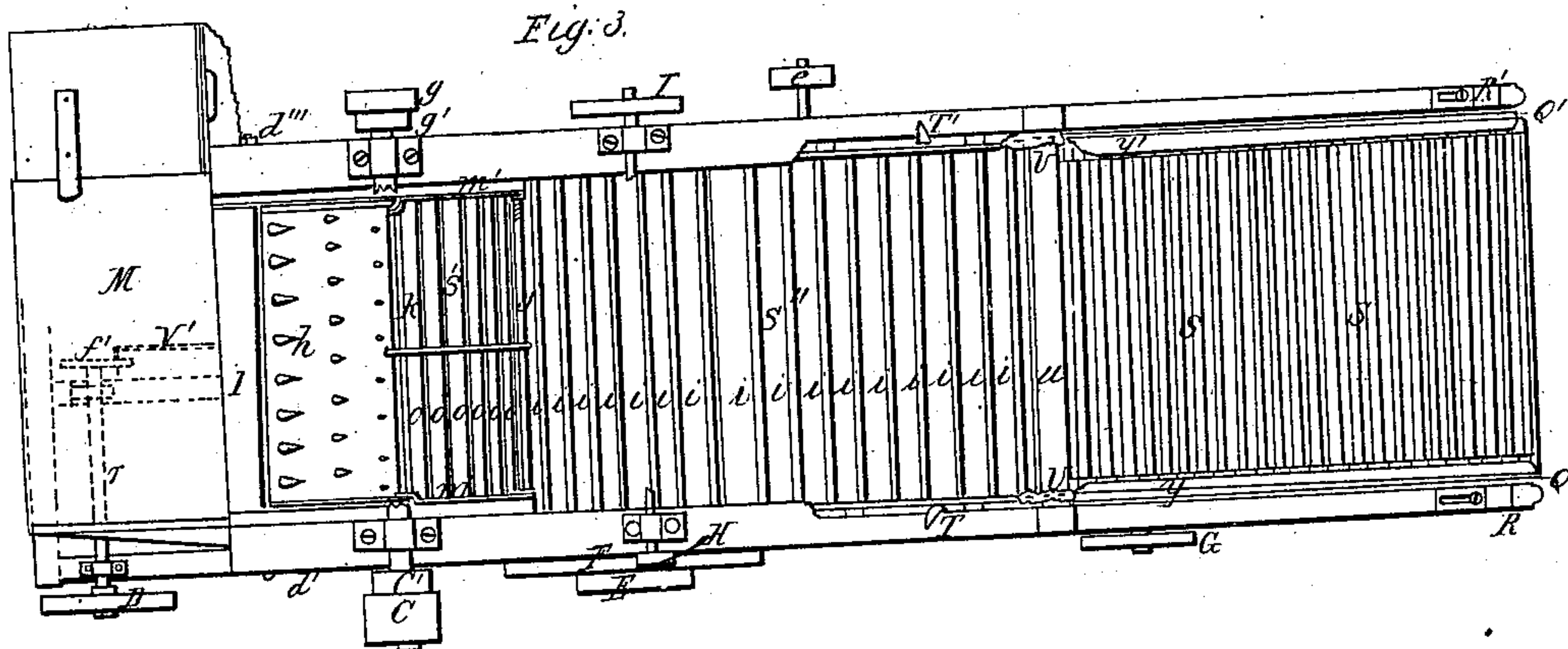


J. TURNER.
GRAIN SEPARATOR.

No. 19,899.

Patented Apr. 6, 1858.



Frank Robinson
Geo. J. Barton

Inventor,
Josiah Turner

UNITED STATES PATENT OFFICE.

JOSIAH TURNER, OF SUNAPEE, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF, AND E. BURKE,
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GRAIN-SEPARATOR.

Specification of Letters Patent No. 19,899, dated April 6, 1858.

To all whom it may concern:

Be it known that I, JOSIAH TURNER, of Sunapee, in the county of Sullivan and State of New Hampshire, have invented a new,
5 useful, and Improved Combination of Machinery for Separating and Winnowing Grain from the Straw and Chaff as it Passes from the Thresher; and I do hereby declare that the following is a full, clear, and ex-
10 act description of my said invention, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, of which said drawings—

15 Figure 1 is an elevation of one side. Fig. 2 is an elevation of the side opposite to Fig. 1. Fig. 3 is a plan of the machine with the toothed cylinder A and the feeder B removed, the pulleys upon the extremities of the shafts of each being shown, and Fig. 4
20 is a sectional view of the upward inclined straw carrier S, the adjustable lattice S', and the vibratory lattice S''. The drawings are made to a scale of one-tenth the working
25 size.

The different representations of the same part are marked in the different figures by the same letters.

30 The nature of my invention consists in the application of an upward inclined, revolving lattice straw carrier to change the motion of the straw and more thoroughly complete the separation of the grain from the straw and chaff, with which I combine
35 a horizontal vibratory lattice, and a smaller adjustable lattice.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

40 A is a toothed cylinder of the ordinary construction to which motion is given by the driving pulley C where the power is applied to the machine. Upon the same shaft that pulley C is on, at the same end is the pulley C',
45 from which a belt runs to the large pulley F (Fig. 1), which carries the wheel *f* (Fig. 2,) as is shown in the case of the wheel *f'* represented by dotted lines in Fig. 3. The pulley F carries upon its axis the swollen
50 pulley E which carries the pulley D by means of a belt. At the other end of the shaft *r* of the pulley D is the wheel *f'*, to which is attached the crank V'. This crank is attached to the vibratory lattice S'', com-
55 posed of the slats *i, i, i, &c.*, (Fig. 3) and the

sides N and N', at *t*. And the length of the stroke of the crank V' is determined by the holes in wheel *f'*. The crank V is attached at one end to the oscillating sieve frame *a* at *t* and at the other to wheel *f* which carries
60 the crank V. The vibratory lattice is supported at one end by the upright rods W and W', which are set loosely in sockets at the top and bottom and permit the lattice to move backward and forward in a longitudinal
65 direction. At the other end the lattice is supported by straps of leather U and U', fastened at the top to the cross brace *u* of the frame of the machine, so as to admit of their being lengthened or shortened. The
70 sieve frame *a* is supported at one end by the straps *z* and *z'*, hung upon the hooks *q* and *q'*, at the other end by the straps T and T' suspended from the frame of the machine thus permitting motion in a longi-
75 tudinal direction. At the other end of the shaft of the driving pulley C are the pulleys *g* and *g'*. From *g* a belt runs to the pulley *e* which is attached to the shaft of the blower K.
80

L and L' are dampers to regulate the force of the current of air generated by the blower K. From the pulley *g'* a belt runs to the pulley I attached to the shaft of the feeder
85 B and causes it to revolve at a slower rate than cylinder A. At the other end of this shaft is a small pulley H from which a cross belt runs to pulley G. The shaft of this pulley G carries the wheel J', which
90 may be considered as a cylinder whose length is the breadth of the machine and the greater portion cut away except the ends.

J is the counterpart of J' and upon the periphery of J and J' runs the inclined straw
95 carrier S.

l is a thin narrow metal strip (or it may be of wood) set in the edge of the feeding table M so that its outer edge may move a
100 short distance upward or downward in order to accommodate itself to the toothed concave *h* when that is raised or lowered.

d' and *d'''* are the ends of a rod passing through the frame to limit the distance that the toothed concave *h* may be raised or low-
105 ered.

d and *d''* are the ends of a rod passing through the machine from side to side confining the inner edge of the toothed concave *h* and also passing through *m* and *m'*.

S' is a lattice composed of narrow slats
110

o, o, o, &c., (Fig. 3,) which slats are inclined to the horizon in the direction of the motion of the straw, and set a little distance apart. The ends of these slats are
 5 confined in the strips *m* and *m'*. The whole lattice *S'* is thus fastened at one end by the rod *d* and *d''*, but the rod *j* does not pass through the sides of the frame but presses against the side merely and by turning
 10 ing the two small nuts at the end of this rod *j*, the strips *m* and *m'* are pressed against the frame and the lattice is thus retained in whatever position it is placed. This lattice is designed to cause the separation
 15 of the grain to commence as soon as it leaves the toothed cylinder A.

S'' is a lattice whose bottom is formed of narrow slots inclined to the horizon, at little distances apart, and in the direction
 20 of the motion of the straw. These slats are shown in Fig. 3 and marked *i*, *i*, *i*, &c.

M, is the table by the side of which the operator stands to feed the unthreshed straw into the cylinder. *b* is the box that
 25 receives the grain.

X is a trough inclined downward at each end from the center into which the light grain, or tailings falls and is conducted out at either end.

30 *Q* and *Q'* are the sides of the inclined straw carrier *S*. This straw carrier is composed of narrow wooden strips, placed a little distance apart, attached at each end to a leathern belt, and *y*, *y'*, are strips of leather
 35 covering the ends of these slots to prevent the escape of the grain.

In the drawings (see Fig. 1) pulleys *D* and *E* are shown the same size, but in point of size *D* should bear the ratio to *E* of 10
 40 to 8.

Having described the construction of my machine I will now briefly describe its operation. The straw is fed from the table *M* between the toothed cylinder, and its corresponding toothed concave, from whence it
 45 is thrown forward and upward against the

feeder *B* which regulates and retards the motion of the straw and revolves at less speed than toothed cylinder *A*. From thence the straw passes along over the lattice work *S''* until it reaches the foot of the inclined straw carrier *S*, when it changes the direction of its motion and ascends and is finally thrown off over the farther extremity of the straw carrier *S*. Meanwhile
 50 the grain commenced falling through the lattice *S'* the instant it had passed the thrasher *A*, and as the straw proceeded the grain sifted through the lattice *S''* and the separation from the straw was made
 55 complete at *S*. The grain having fallen upon the inclined bottom of the lattices *S'* and *S''* was pushed forward at every oscillation of the said lattice toward the lower end. There it falls upon the hopper of
 60 the oscillating sieve frame *a* carried by the crank *V*, and from thence falls upon the sieves across the blast of air generated by mill *K* which separates the chaff and dust from the grain. The grain which is so
 65 light as to be forced over the sieves in the frame *a* by the blast of air falls upon a slide board that conducts it into trough *X*, from whence it escapes at either end. The grass seed escapes through the sieves and
 70 may be caught by a box along side of box *b*.

I do not claim the toothed cylinder *A* or its accompanying toothed concave, nor do I claim any of the above described devices
 75 separately, but

What I do claim and desire to secure by Letters Patent is—

The upward inclined revolving straw carrier *S* in combination with the vibratory lattice *S''* and the adjustable lattice *S'*,
 80 constructed and operating substantially in the manner as hereinbefore set forth and described.

JOSIAH TURNER.

Witnesses:

C. A. MANSON,
 GEO. S. BARTON.