

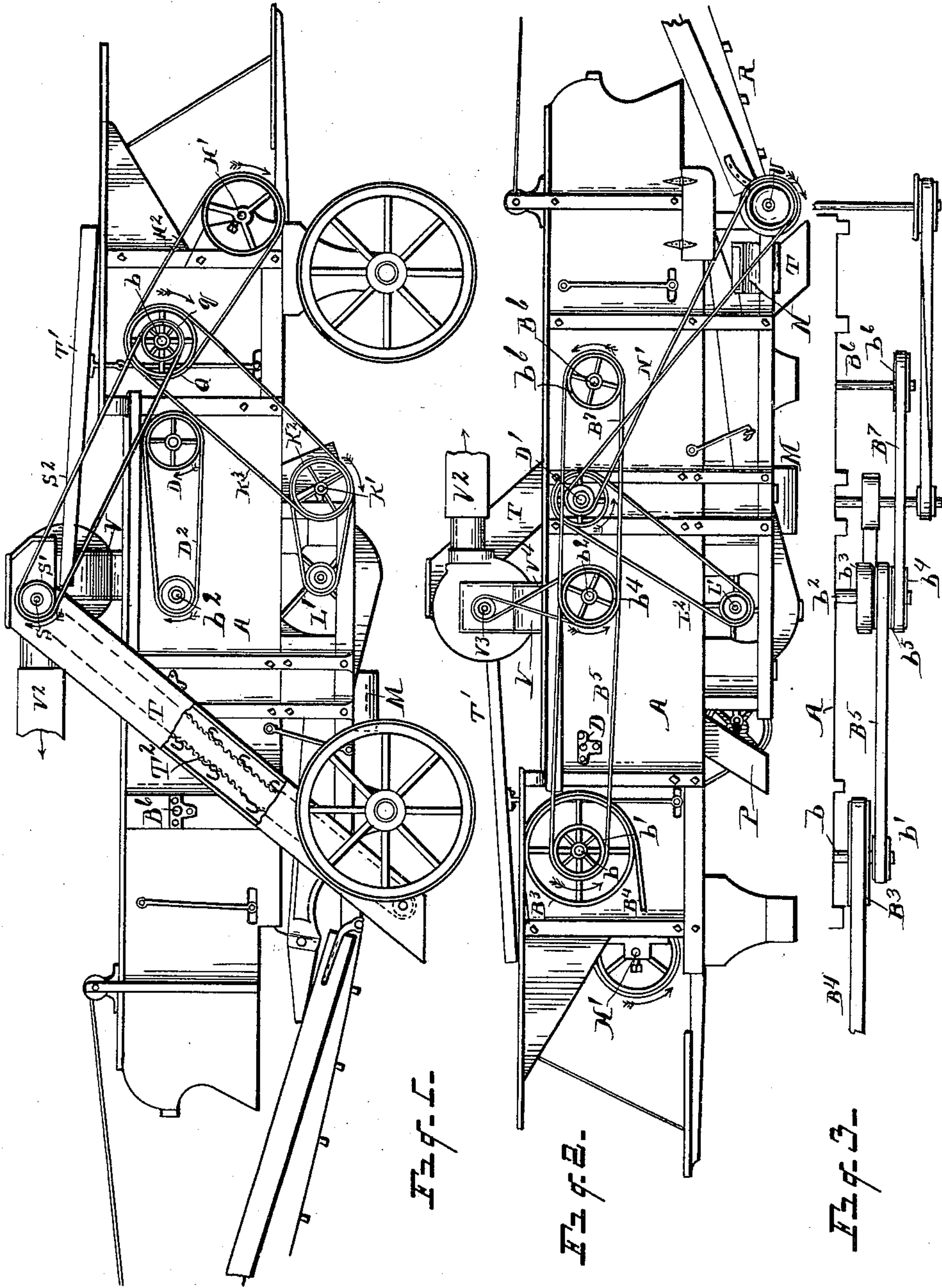
(No Model.)

2 Sheets—Sheet 1.

F. A. PRIOR.  
BEAN THRASHING MACHINE.

No. 536,652.

Patented Apr. 2, 1895.



WITNESSES

Otto B. Baenziger

M. A. Martin

INVENTOR

Fred A. Prior

By His Attorney

Wells Stoughton

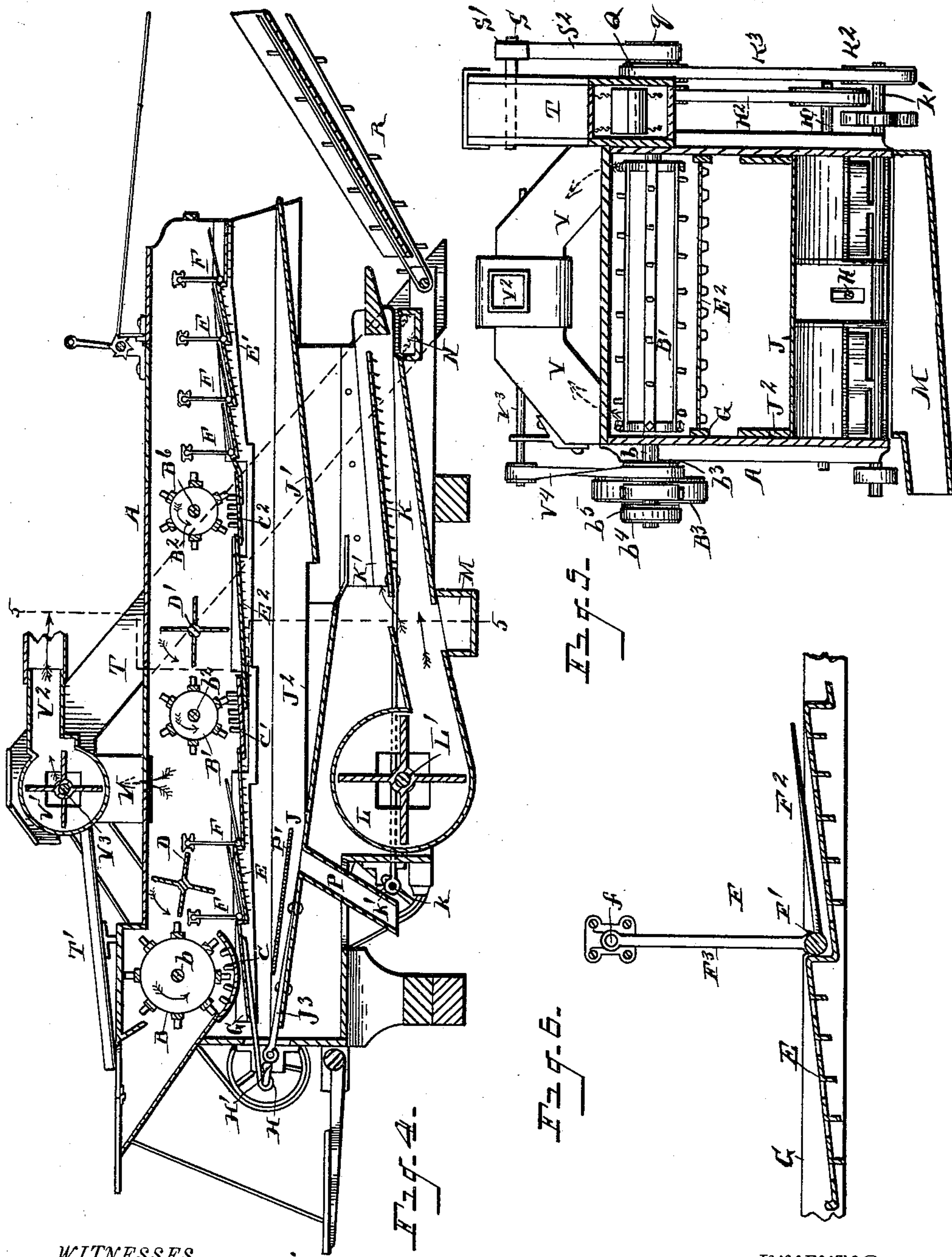
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Newell Wright



# UNITED STATES PATENT OFFICE.

FRED A. PRIOR, OF MILFORD, MICHIGAN.

## BEAN-THRASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 536,652, dated April 2, 1895.

Application filed December 5, 1894. Serial No. 530,950. (No model.)

*To all whom it may concern:*

Be it known that I, FRED A. PRIOR, a citizen of the United States, residing at Milford, county of Oakland, State of Michigan, have  
5 invented a certain new and useful Improvement in Bean-Thrashing Machines; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-  
10 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object certain new and useful improvements in a bean thrashing  
15 machine and consists of the construction, combination and arrangement of devices hereinafter specified and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation embodying my  
20 invention. Fig. 2 is a side elevation from the side opposite to Fig. 1. Fig. 3 is a partial plan view showing the arrangement of the driving pulleys and belts. Fig. 4 is a longitudinal vertical section. Fig. 5 is a vertical  
25 cross section on the line 5—5 Fig. 4. Fig. 6 is a detail view showing the construction of the sieve and the shakers adjacent thereto.

My invention is designed to provide a bean thrashing machine of superior efficiency, and  
30 I carry out my invention as follows:

A denotes the case of the thrashing machine in which are located three rotatable cylinders B, B' and B<sup>2</sup>. These cylinders may be of ordinary construction. In actual experi-  
35 ence I have found that where only two cylinders have been employed, the thrashing is incomplete and many pods have been carried over the tail end of the machine unthrashed; but I have found that by adding a third cylinder B<sup>2</sup>, the operation of the machine is efficient in the fullest degree and to the highest extent satisfactory, the employment of the third cylinder proving extremely advantageous and effectually preventing all liability  
40 of any pods passing through the machine without being properly thrashed.

C denotes a toothed concave or plate under the cylinder B.

C' and C<sup>2</sup> are toothed plates under the cylinders B' and B<sup>2</sup> respectively.

D and D' represent rotatable beaters to the rear of the cylinders B and B'.

E denotes a corrugated sieve below the cylinders B and beater D; and E' a similar sieve below and to the rear of the cylinder B<sup>2</sup>. 55

E<sup>2</sup> denotes a central sieve.

F denotes a shaker formed with a cross-bar F' provided with shaker teeth F<sup>2</sup> and a vertical arm F<sup>3</sup> having a jointed engagement upon the frame as indicated at f. 60

G denotes a sieve frame agitated by a rod H upon a crank shaft H'. It will be apparent that as the sieve frame G is agitated, a rocking movement will be given to the bar F' of the shakers F whereby the teeth F<sup>2</sup> will  
65 thoroughly shake the bean straw above the sieves.

J and J' denote inclined bottom boards beneath the sieves E, E', E<sup>2</sup>, said bottom boards preferably inclining toward the middle of the  
70 machine as shown in Fig. 4, and both discharging at their inner ends upon a screen K.

L denotes a fanning mill at the base of the machine discharging its blast rearwardly upon the product discharged from the bottom  
75 boards J J'.

The screen K preferably inclines forward, as shown in Fig. 4, and discharges into a transverse spout or trough M, a separation of the beans being effected in the trough M. 80 Another separation is made at the tail end of the screen K, the separated product discharging over the rear end of said sieve into a transverse trough N. I prefer also to provide for a separation midway the extremities of  
85 the bottom board J, as through a duct P, whereat sand and other impurities are carried off. The spout or trough N discharges into an elevator T whereby its contents are carried back to the primary cylinder B, the ele-  
90 vator T discharging into a spout T'.

K' is the frame of the screen K, said frame being agitated by an eccentric k upon a shaft k'.

R denotes a carrier of any ordinary construction at the tail end of the machine. The shaft b of the cylinder B is provided with a driving pulley b'. 95

B<sup>3</sup> denotes the pulley upon which the driving power of the machine is belted, B<sup>4</sup> indicat- 100



ing the driving belt. The shaft  $b^2$  of the cylinder  $B'$  is provided with driving pulleys as at  $b^3$  and  $b^4$  and also with an intermediate pulley as at  $b^5$ . The cylinders  $B$  and  $B'$  are belted  
5 together by a belt  $B^5$  upon the pulleys  $b'$ ,  $b^5$ .

$B^6$  is the shaft of the cylinder  $B^2$  provided with a pulley  $b^6$  belted, as by a belt  $B^7$ , with the pulley  $b^4$  of the cylinder  $B'$ .

It will be perceived that by my improved  
10 construction and arrangement the cylinders are all belted together at the ends of their respective shafts on the same side of the machine as that on which the driving pulley  $B^3$  is located. It will be obvious that the strain of  
15 the driving power upon the main driving belt  $B^4$  is in a forward direction, while the strain of the belts upon the cylinder shafts, by which the rear cylinders  $B'$ ,  $B^2$  are driven, is in the opposite direction. Were the driving belts  
20  $B^5$  and  $B^7$  located upon the opposite extremities of the cylinder shafts, it will be seen that there would be a forward strain upon one end of the primary cylinder shaft  $b$  and a strain in the opposite direction on the opposite end  
25 of said shaft. Where this has been done, the shaft of the primary cylinder and its bearings obviously wear in such a manner as to throw the shaft of the primary cylinder at an oblique angle, injuring the machine and requiring  
30 more power to drive it, while also other parts of the machine become disarranged thereby. For these reasons my invention contemplates locating all the belts driving the cylinders, upon the same side of the machine, so that  
35 the forward and rearward strains of the various belts hereinbefore explained will counteract one another and prevent the liability of having the shaft of the primary cylinder thrown into an oblique position, as above  
40 specified. On the opposite side of the machine, as indicated in Fig. 1, the shaft  $b$  is provided with pulleys  $Q$  and  $q$ . The shaft  $k'$  is provided with a pulley  $K^2$  belted on to the pulley  $Q$ , as by a belt  $K^3$ .

45  $S$  is the upper shaft of the elevator  $T$  provided with a pulley  $S'$  belted upon the shaft of the primary cylinder as by a belt  $S^2$ . The shaft  $H'$  is also belted upon the shaft of the primary cylinder, as by a belt  $H^2$ . The shaft  
50 of the beater  $D'$  is belted upon the fan shaft

$L'$ , as by a belt  $L^2$ , and also upon a shaft  $U$  as by a belt  $N'$ , the shaft  $U$  driving the conveyer chain  $T^2$  and also the carrier  $R$ .

At the top of the case of the machine is a box  $V$  opening into the interior of the machine  
55 preferably at both ends and preferably forward of the cylinder  $B'$  in the center of which box is located a fan  $V'$  having a discharge spout  $V^2$ . The shaft  $V^3$  of said fan is belted upon the shaft of the cylinder  $B'$ , as by a belt  
60  $V^4$ . The beater  $D$  is driven by a belt  $D^2$  from the shaft of the cylinder  $B'$ . The shaft  $S$  of the elevator  $T$  is belted, as by a belt  $S^2$ , upon the shaft  $b$  of the primary cylinder  $B$ , the shaft  $S$  being provided with a pulley  $S'$ . The  
65 fan  $V'$  exhausts the dust and other impurities from the interior of the machine through the box  $V$ , discharging the same through the spout  $V^2$ , the fan  $V'$  serving a very important function in the machine.  
70

Above the duct  $P$ , I locate a screen  $P'$ .

The bottom boards  $J J'$  are engaged with an agitable frame  $J^2$  connected by an eccentric rod  $J^3$  upon the shaft  $H'$ .

What I claim as my invention is—  
75

In a bean thrashing machine the combination of the case, the cylinders  $B$ ,  $B'$ ,  $B^2$ , an agitable screen therebeneath, agitable centrally inclined bottom boards beneath said screen provided with an opening therebetween, a discharge duct in one of said bottom  
80 boards, a screen above said duct, an agitable forwardly inclined screen  $K$  below the opening between said bottom boards, a discharge trough  $M$  below the forward end of said latter  
85 screen, a trough  $N$  below the rear end of said latter screen, a conveyer to convey the stock from the trough  $N$  back into the primary cylinder, a fan forward of the screen  $K$  to discharge its blast upon the stock falling upon  
90 said screen, a box  $V$  opening into the case, and a suction fan in said box, all arranged substantially as and for the purposes described.

In testimony whereof I sign this specification in the presence of two witnesses.

FRED A. PRIOR.

Witnesses:

N. S. WRIGHT,  
MARY A. MARTIN.