

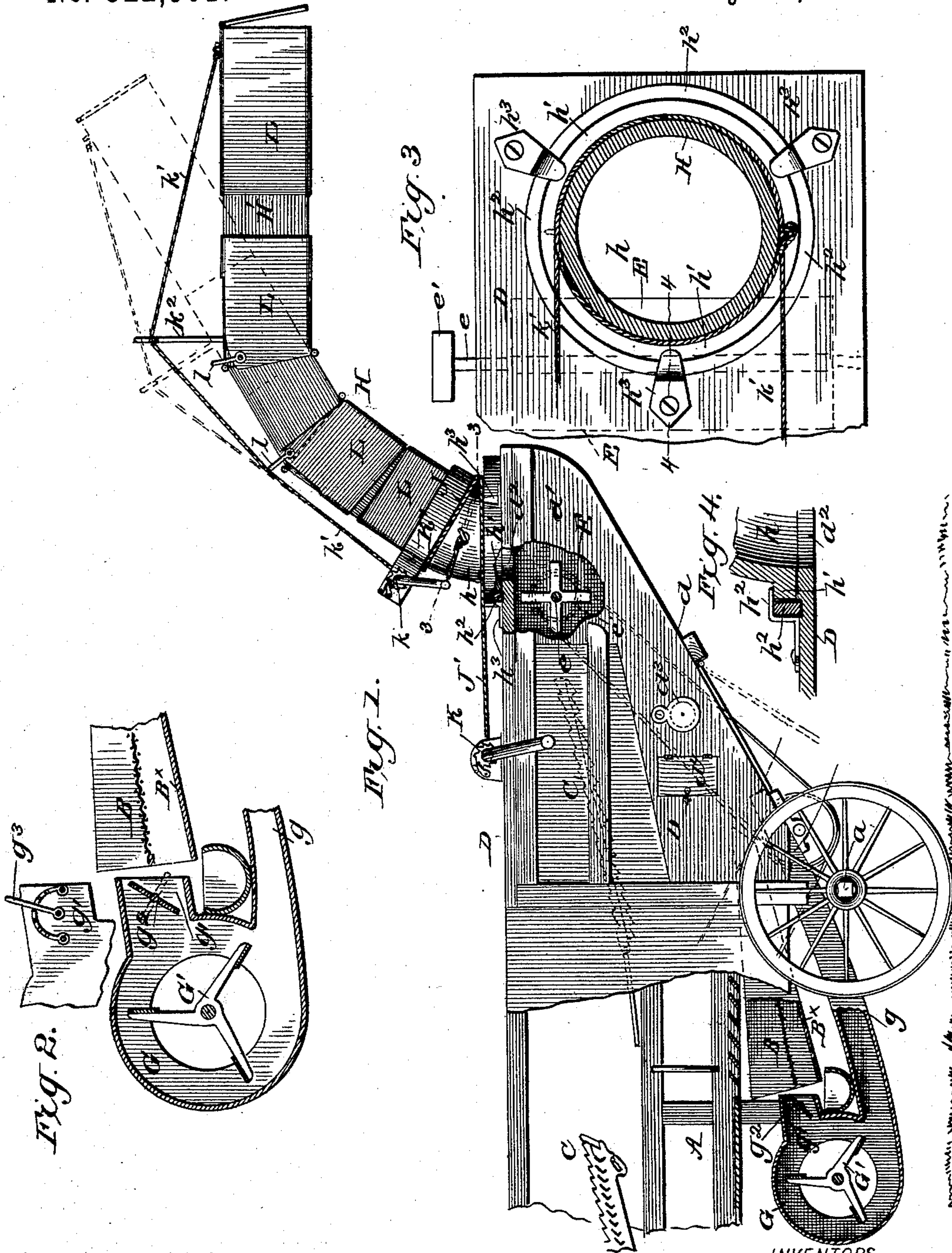
(No Model.)

2 Sheets—Sheet 1.

W. L. JOHNSON & W. L. HAY.  
AIR BLAST ATTACHMENT FOR THRASHING MACHINES.

No. 522,901.

Patented July 10, 1894.



WITNESSES:  
*Fred G. Deterick*  
*Jos. A. Ryan*

INVENTORS  
*William L. Johnson,*  
*William L. Hay,*  
BY *Munn & Co.*  
ATTORNEYS.



(No Model.)

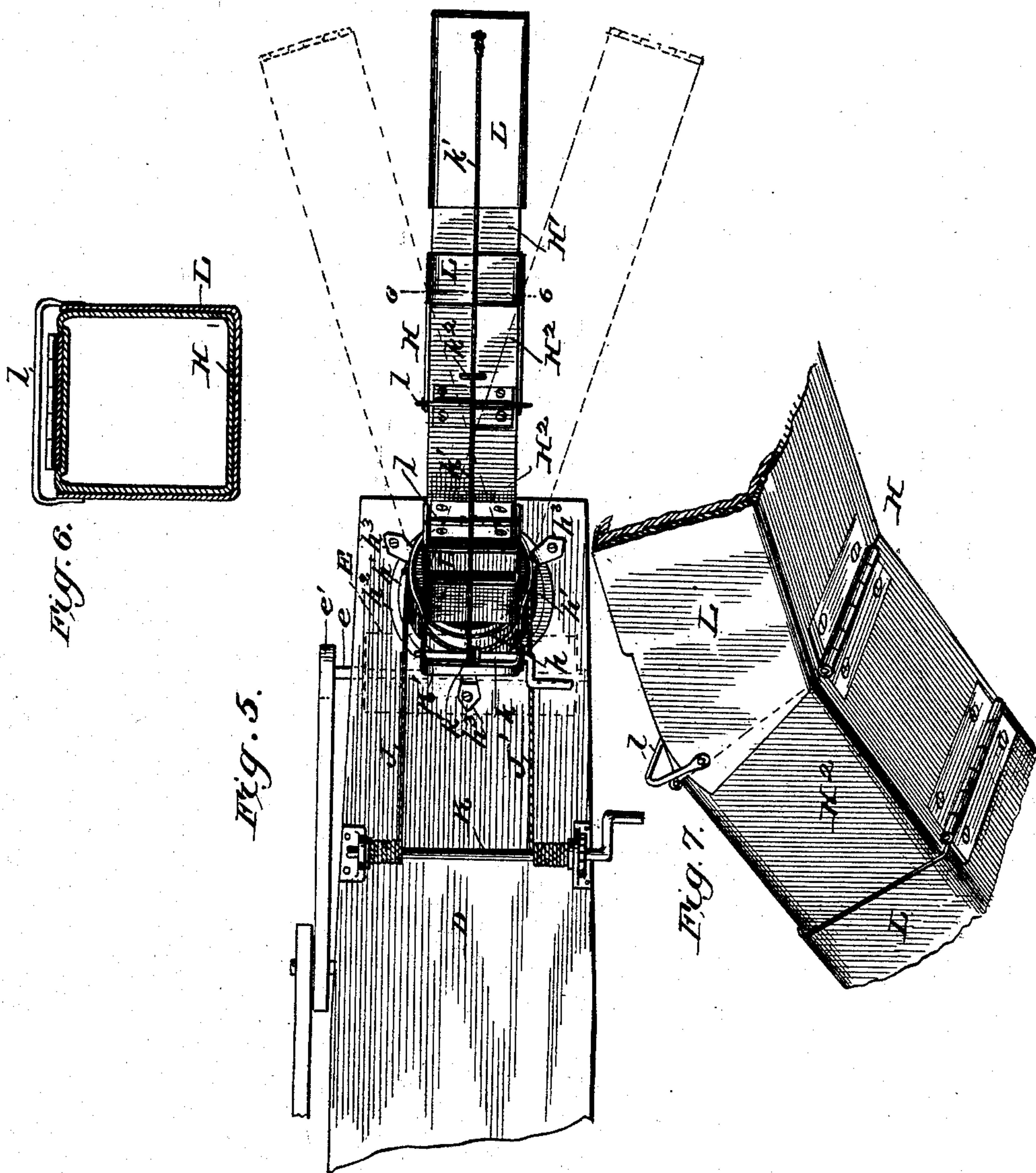
2 Sheets—Sheet 2.

W. L. JOHNSON & W. L. HAY.

AIR BLAST ATTACHMENT FOR THRASHING MACHINES.

No. 522,901.

Patented July 10, 1894.



WITNESSES:  
*Fred G. Deterich*  
*Jos. A. Ryan*

INVENTORS  
*William L. Johnson*  
*William L. Hay.*  
BY *Wm. L. Johnson*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

WILLIAM LOUIS JOHNSON AND WILLIAM LAFAYETTE HAY, OF FRANKLIN,  
TENNESSEE.

## AIR-BLAST ATTACHMENT FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 522,901, dated July 10, 1894.

Application filed October 12, 1893. Serial No. 487,959. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM LOUIS JOHNSON and WILLIAM LAFAYETTE HAY, of Franklin, in the county of Williamson and State of Tennessee, have invented certain new and useful Improvements in Air-Blast Attachments for Thrashing-Machines, of which the following is a specification.

Our invention relates more particularly to air blast stacking attachments for thrashing machines, which can be readily connected to any of the modern thrashing machines; and it has for its object to provide simple and effective means for stacking the straw, without the aid of the elevator devices and the hands usually employed in connection therewith.

Our invention also has for its object to provide suitable blast devices arranged to discharge a divided blast, whereby to the more effectively separate the chaff and straw from the grain at the final separating screen and at the same time force such straw and chaff out with the bulk or heavy straw through a condensing chamber, and a stacking tube.

Furthermore it has for its object to provide stacking devices, in which the discharge tube or chute is adapted for lateral and vertical movement.

With other minor objects in view all of which will hereinafter be referred to our invention consists in such novel combination and peculiar arrangement of parts, as will be first described in detail and then set out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a thrashing machine with our improved attachments connected therewith, parts being shown in section. Fig. 2 is a detail sectional view of the blast devices hereinafter more particularly referred to. Fig. 3 is a sectional plan view taken on the line 3—3 Fig. 1. Fig. 4 is a detail cross section on the line 4—4 Fig. 3. Fig. 5 is a plan view of the discharge chute and its adjusting mechanism. Fig. 6 is a cross section of the same on the line 6—6 Fig. 5 and Fig. 7 is a detail perspective view of one of the joint connections.

Our improved stacking attachments comprise a blast chamber, which is adapted to be

secured to the tail or straw discharging end of the ordinary thrashing machines, the outer end of which is contracted and formed with a discharging mouth, which opens into a chute, of a suitable length, through which the straw is forced by the air blast.

Referring to the drawings A indicates the thrashing machine frame, B the lower sieve or riddle, and C C the straw carriers or separating frames all of which are of the ordinary construction.

D indicates a blast chamber which may be formed as the continuation of the tail end of the main frame, or, when connected with an old machine consists of a separate portion adapted for detachable connection with such machine. This blast chamber it will be noticed has its bottom inclined upward as at  $d$  to form a contracted upper end  $d'$ , which end has a discharge mouth  $d^2$  opening into the stacking tube H the particular construction of which will be presently set out.

It will be noticed by reference to Fig. 1, that the rear straw carrier or shaker C projects into the chamber D, as also the riddle or lower sieve shoe, and to the front of such shoe is located the blast devices, the particular arrangement and construction of which form an essential feature of this invention. These blast devices comprise the chamber G proper, which is formed with a lower or main discharge spout  $g$  which projects under the riddle shoe  $B^x$ , over the rear axle  $a$  and into the blast chamber D, such chamber G being also formed with an upper discharge spout  $g'$  which projects to discharge a divided air blast against the riddle B, above and below the same. The object of thus dividing the upper or separating blast, is to provide for a more effective separation of the chaff and light straw from the grain, and it will be manifestly understood that by discharging a portion of the blast under the screen, such of the chaff as would drop through the screen will be forced back up through the screen and out through the rear of the riddle shoe into the main blast chamber. As the condition of the grain and straw requires at times a greater blast above, than below the screen B, we provide a valve  $g^2$  in the discharge  $g'$ , which can be set by the lever  $g^3$  to any desired position, whereby



to deflect the blast to discharge above and below the screen in the volume desired.

The fan  $G'$  may be of any desired construction but we prefer to employ a three bladed fan as shown. The main blast spout  $g$  it will be noticed, discharges upon the inclined bottom of chamber  $D$  and in the direction of the outlet  $d'$ , which produces a strong suction draft and in consequence draws the straw from the shakers  $C$ , and the chaff and straw separated from the grain as it passes through the lower screen  $B$ , back into the chamber  $D$ , toward the mouth  $d$  at which point it condenses and receives the direct impact or force of the entire blast.

As the straw when wet, has a tendency to clog when forced up into the contracted end of the chamber  $D$ , and as a more even and effective distribution of the straw can be obtained when it feeds into the chute  $H$  in a somewhat separated condition, for this purpose at a point just in advance of the outlet  $d'$  a rotary beater  $E$  is arranged, formed of a shaft  $e$  having radial blades, and such shaft has a band wheel  $e'$  belted with one of the drive shafts of the machine as shown. By this construction it will be seen that no matter in what condition the straw is forced up into the chamber  $D$  it will be separated by the beater  $E$  before it passes out into the chute. Furthermore such beater serves to counteract the tendency of a backward blast at the discharge opening.

The chamber  $D$  has a sight hole  $d^3$ , and small door  $d^4$ , through which the arm of an attendant can be inserted; it also has its bottom formed with a swinging door section whereby such attendant can enter the chamber, in case it is found necessary to clean it out.

So far as described it will be noticed that by arranging the blast devices, and the blast chamber  $D$  in the manner described, we not only provide simple and effective means for carrying of the straw and chaff, but also provide effective means for regulating the blast over and under the separating screen  $B$ , whereby a more effective separation of the grain from the light straw and chaff can be obtained.

Referring now more particularly to Figs. 1 and 5 the special construction and arrangement of the stacking tube will be the more readily understood. The tube  $H$  which may have its body portion formed square, or other shape, in cross section, is held onto the upper end of chamber  $D$  for lateral and vertical movement. To this end the lower or receiving mouth member  $h$  is made circular, with an annular flange  $h'$ , which seats in a metallic ring or seat  $h^2$ , and is held for rotation therein by the guide members  $h^3$ .

By referring to Fig. 5 it will be noticed that the chute is shown moved to lateral positions in dotted lines, and as a simple means for effecting such adjustments, cords or chains  $J J'$  are wound about section  $h$  in reverse di-

rections and extended rearward and wound in reverse directions on a winding shaft  $K$ , mounted upon the top of the chamber  $D$ , which shaft has a suitable crank handle and pawl and ratchet mechanism as shown.

The stacking tube which is preferably made of sheet metal comprises an outer or long member  $H'$  and a series of jointed inner sections  $H^2$  which are hinged together and have a yielding connection with each other and with the lower member  $h$ , such connections being made by hinging them together in the manner shown. By forming the tube of jointed sections the outer end of the tube is adapted for vertical adjustment, and as a simple means for elevating or lowering such tube, a yoke frame  $K'$  secured to the member  $h$ , is provided, in which is journaled a winding shaft  $k$ , on which is wound one end of a winding rope  $k'$  which passes over a guide  $k^2$  on one of the members  $H^2$ , and is secured to the front end of the outer section  $H'$ . By winding or unwinding such rope  $k'$  on the shaft  $k$  the front end of the tube can be raised or lowered as desired. At the joints of the members  $H^2$ , cuff like members  $L$  are secured, which have hinged connections and are adapted to move over the joints of such members, and close up the openings between them as they are straightened when the tube is elevated and adjusted to its uppermost or extended position, and to brace such members  $L$  they are connected by cross bails  $l$  as most clearly shown in Fig. 7. The outer section of the tube may be provided with a gate or cover plate as shown.

From the foregoing description taken in connection with the drawings the advantages and complete operation of our improvements will be readily understood. The same are of a simple construction, and can be connected with any of the modern thrashing machines, by simply substituting the blast devices shown, in place of the blast fan mechanism usually employed. A great saving is had in that the several hands usually necessary to operate and take care of the straw elevating devices are dispensed with, and by arranging the stacking tube in the manner shown the same can be set or extended to make the stack at the rear, or to the side of the machine, at such distance, as may be desired.

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

1. In a stacking attachment for thrashers, the combination with the straw agitating devices the conveyer tube and the separating screen, of a blast chamber at the rear thereof having a discharge at its outer end adapted to open into the conveyer tube, and blast devices disposed in front of the separating screen, having a discharge opening onto such screen and a separate discharge opening into the blast chamber, all substantially as shown and for the purposes described.

2. As an improvement in thrashing ma-



chines, the combination with the riddle or  
lower agitating screen and a blast chamber  
at the rear thereof adapted to receive the sepa-  
rated straw and chaff, said chamber having  
5 a discharge outlet, of a fan chamber disposed  
in front of the screen, having an opening held  
to discharge over and under and beyond such  
screen, a valve in such opening, and a sepa-  
rate discharge tube passed under the said  
10 screen into the blast chamber, all arranged  
substantially as shown and for the purposes  
described.

3. In a stacking attachment for thrashers,  
the combination with the straw agitating de-  
15 vices and the separating screen, of a blast

chamber at the rear thereof having a discharge  
at the outer end adapted to open into the con-  
veyer tube blast devices disposed in front of  
the separating screen having an upper dis-  
charge mouth held to discharge over and un- 20  
der the screen and an independent tube ex-  
tended back beyond the screen and separat-  
ing devices, and into the blast chamber all  
substantially as shown and described.

WILLIAM LOUIS JOHNSON.

WILLIAM LAFAYETTE HAY.

Witnesses:

M. P. G. WINSTEAD,

JNO. B. MCEUN,

E. E. GREEN.