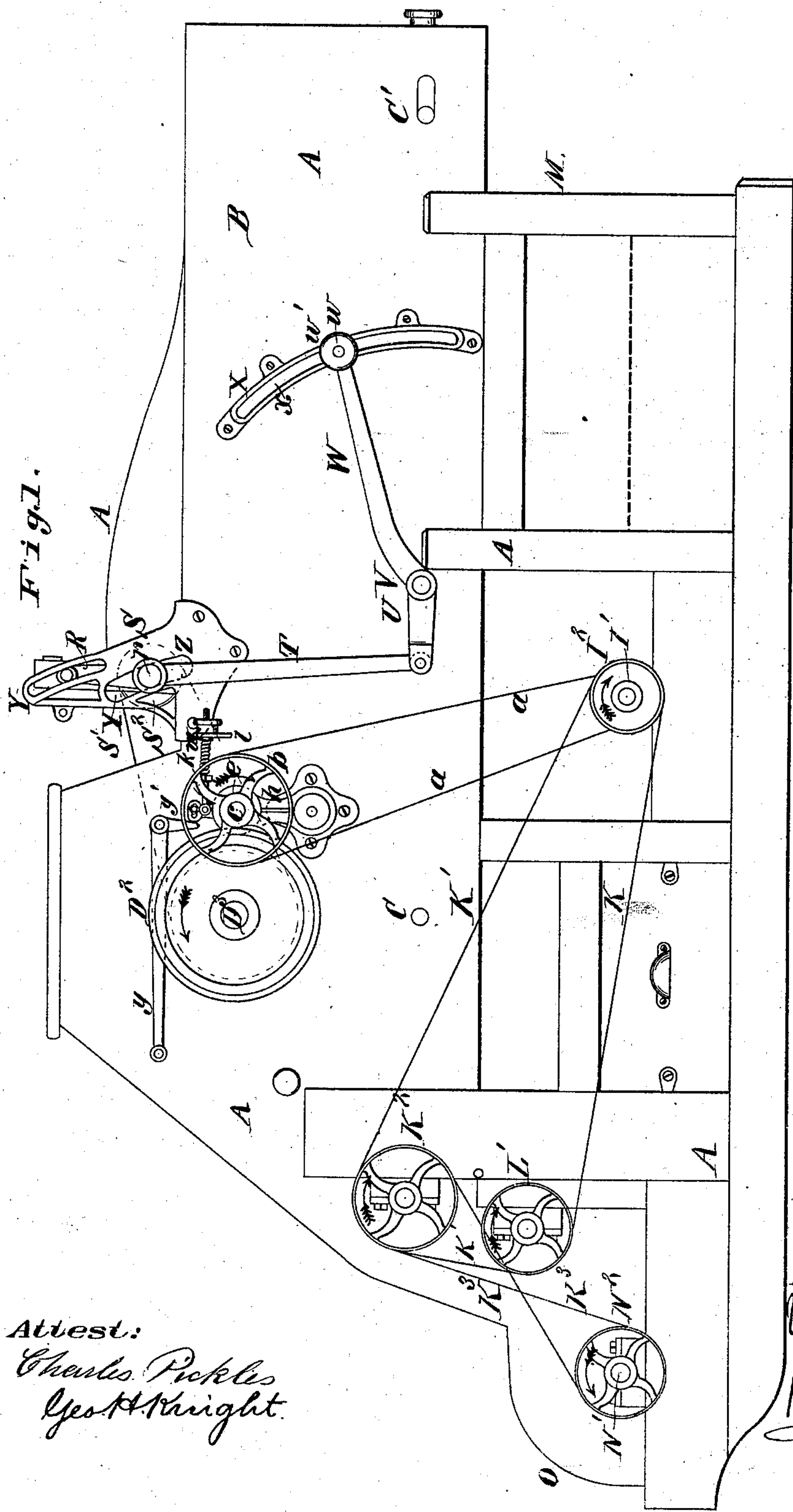


(No Model.)

3 Sheets—Sheet 1.

W. L. CROWSON.

Combined Cleaner and Feeder for Cotton Gins.  
No. 237,255. Patented Feb. 1, 1881.



Attest:

*Charles Pickles*  
*Geo. H. Knight*

*Inventor:*

*William L. Crowson*  
*By*  
*Arthur B. Baw*  
*Attys.*

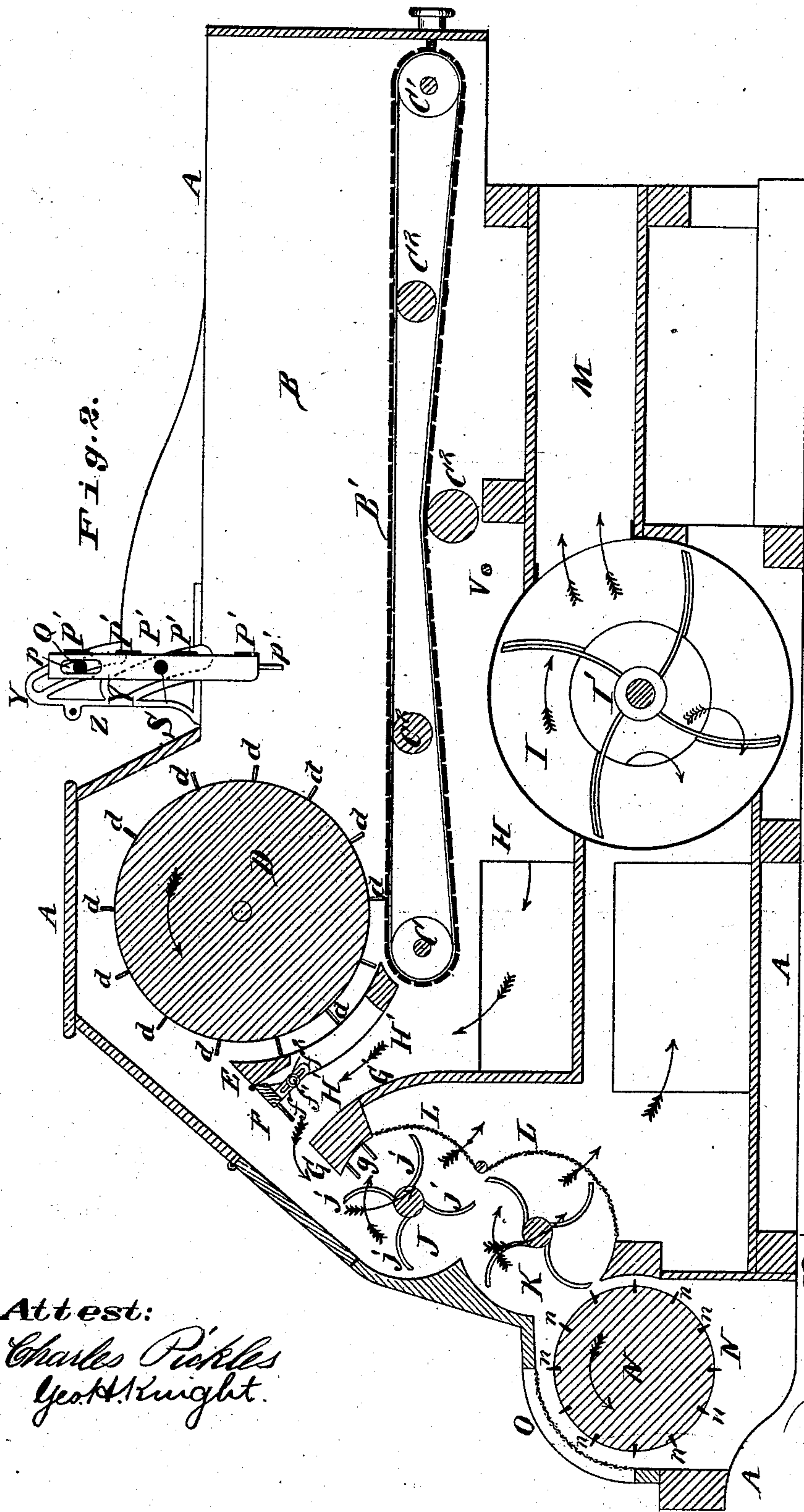
(No Model.)

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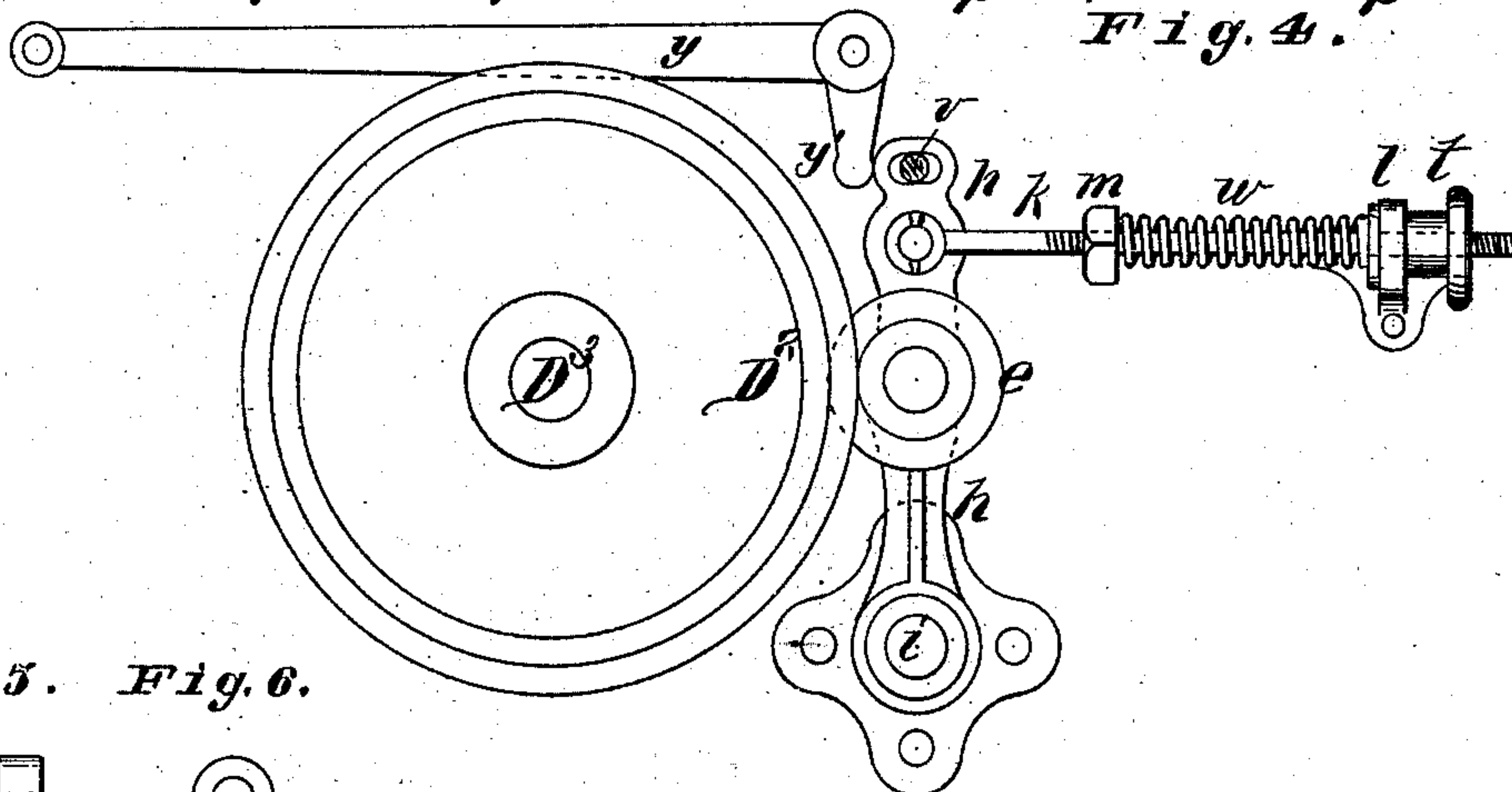
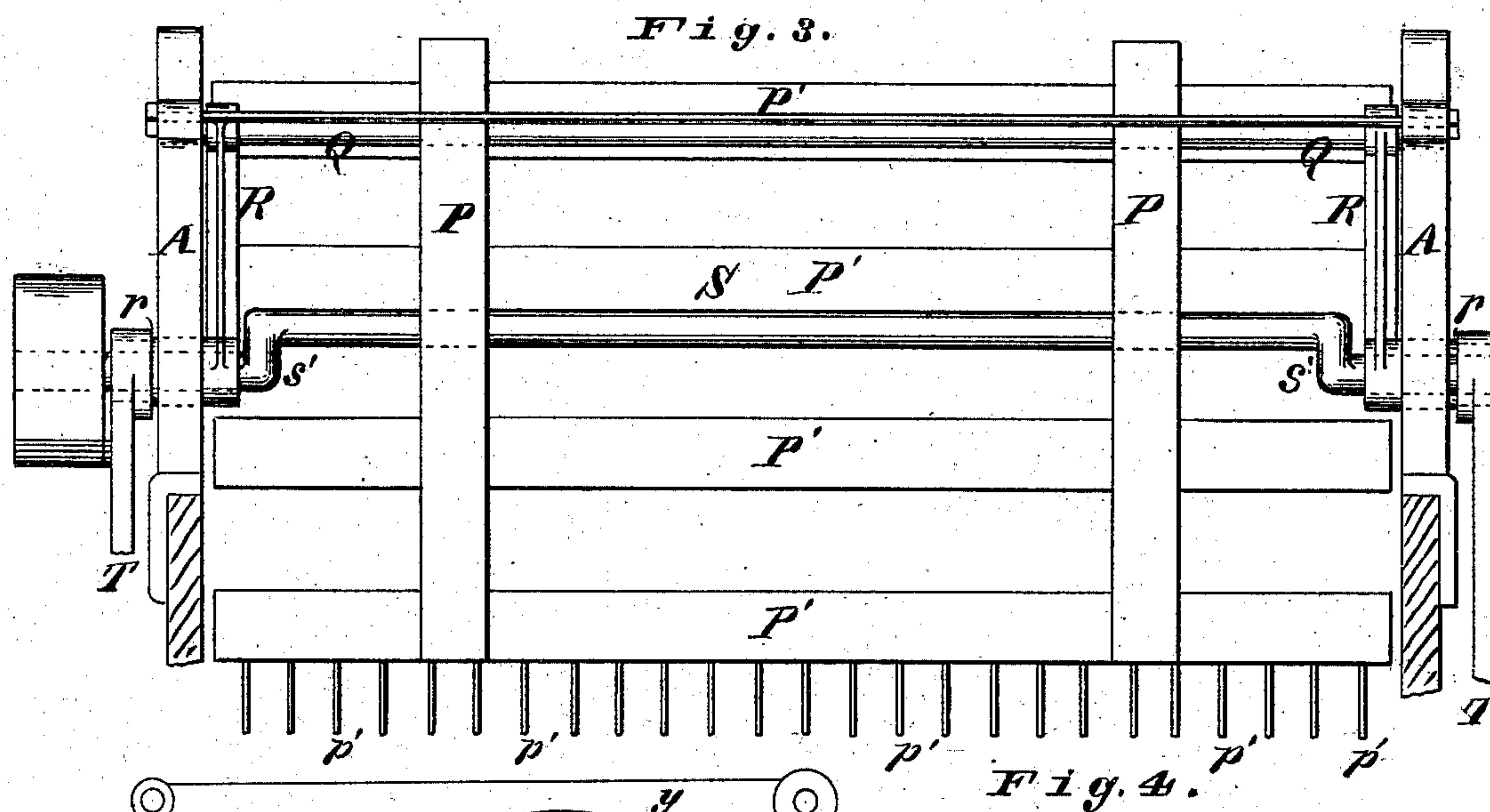


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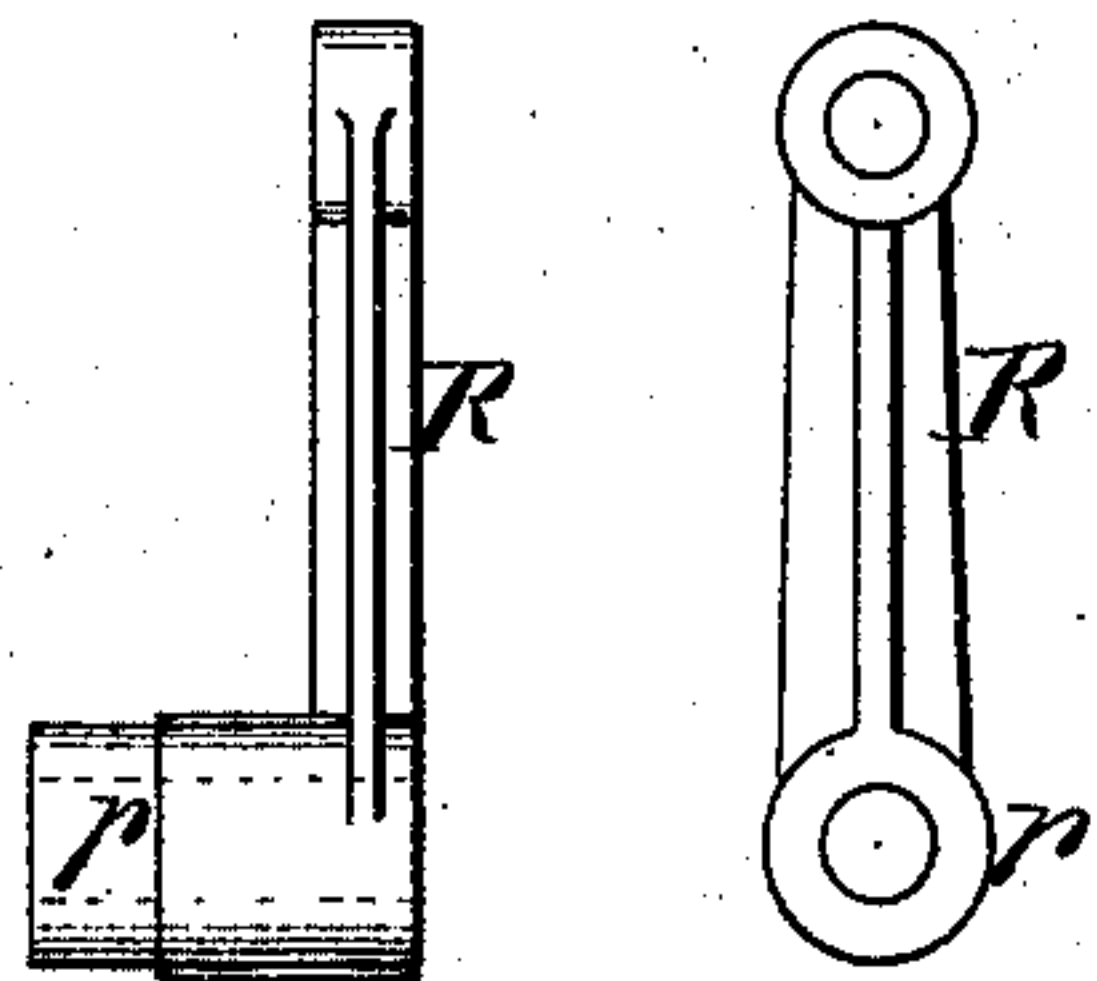
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W. L. CROWSON.

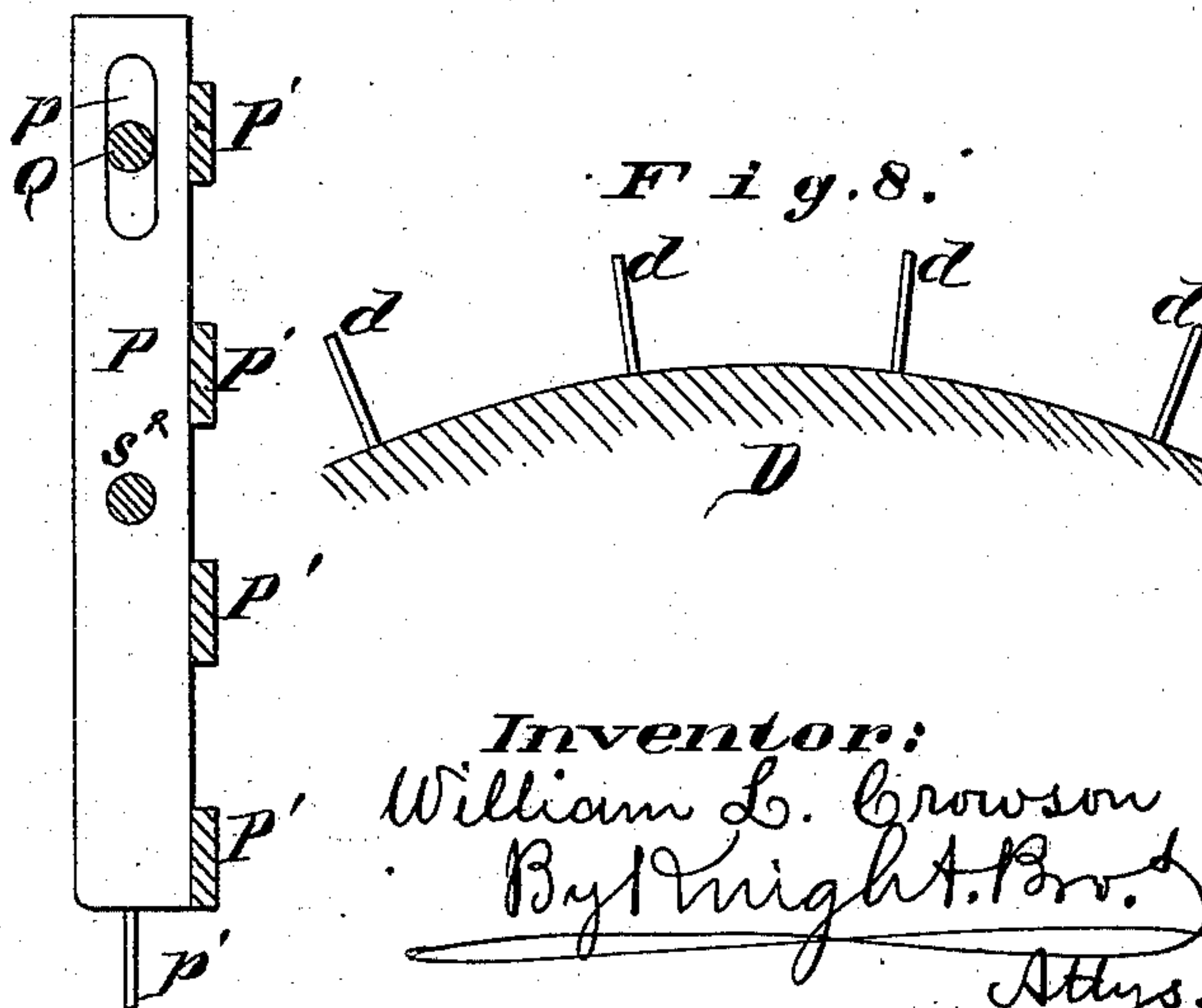
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*Fig. 5. Fig. 6.*



*Fig. 7.*



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# UNITED STATES PATENT OFFICE.

WILLIAM L. CROWSON, OF ST. LOUIS, MISSOURI.

## COMBINED CLEANER AND FEEDER FOR COTTON-GINS.

SPECIFICATION forming part of Letters Patent No. 237,255, dated February 1, 1881.

Application filed July 6, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM L. CROWSON, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Combined Cleaner and Feeder for Cotton-Gins, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention is an improvement on the invention described and claimed in Letters Patent No. 202,238, granted to me April 9, 1878.

My present improvement relates, first, to the feed-rack; secondly, to the feed-cylinder; thirdly, to the stopping mechanism; and, fourthly, to the laterally-flanged roller taking the cotton from the last beater.

In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a longitudinal section. Fig. 3 is a view of the feed-rake in elevation. Fig. 4 is a side view of the stop mechanism. Fig. 5 is an edge view of the arm connecting the shaft and transverse bar on which the oscillating rake is supported. Fig. 6 is a side view of the same. Fig. 7 is a cross-section of the oscillating rake, and Fig. 8 is a detail section of the feed-roll. Figs. 3 to 8, inclusive, are on larger scale than Figs. 1 and 2.

The case and frame are shown at A A, &c. B is the cotton-box. The bottom of the cotton-box consists of an endless apron, B', supported on drive-roll C, stretched roll C', and idle-rolls C<sup>2</sup>. At the front end of the cotton-box is the feed-roll D, with round teeth *d* projecting radially from the surface of the roll.

It is believed that all teeth used on cotton-feed rolls before my adoption of this form have been curved either forward or backward, generally the former, and pointed. Where the teeth are made to curve forward they take too firm a gripe of the cotton and hold it with too great tenacity, and in consequence of this the feed-roller is liable to carry up bunches of cotton and to carry cotton around with it, failing to discharge it at the proper point. The forwardly-curved and pointed teeth are also liable to become loaded with husks impaled upon them. The backwardly-curved teeth, on the other hand, fail to take the requisite hold upon the cotton. The straight teeth take up the cotton in small quantities, and for this reason

the roller can be run at higher speed. Thus the cotton is lightened up and the bunches picked to pieces by the feed-roller.

E is a fixed transverse bar in close proximity to the ends of the teeth *d*, over which the cotton passes as it leaves the feed-roller.

F is an inclined adjustable rack hinged to the bar E, and adjusted in inclination by means of slotted arms *f*, through which pass screw-studs *f'*, with a set-nut, *f*<sup>2</sup>. The rack can be inclined more or less, according to the quality of the cotton, being placed in such position that the cotton is carried over the bar G, and the foreign substances of greater weight than the cotton drop between the bars of the rack and enter the trash-chamber H, beneath the feed-roller.

H' is the passage between the bar F and feed-roller above, and the bar C and inclined board G' beneath. There is an upward air-blast through the passage H' from the fan I.

From the bar G the cotton falls upon the beater J, whose arms *j'* pass beneath pins *g*, projecting downwardly from the bar G. From the beater J the cotton falls upon another beater, K. The inner sides of the beater-cases consist of wire-work L, through which escape dust, &c., being drawn through and conveyed away through the flue M by the fan I. The cotton is taken from the last beater, K, by a roller, N, having longitudinal bars or flanges *n* upon its surface to carry the cotton outward from the beater and work it against the wire-work concave O, to expel any remaining dust. From the flanged roller N the cotton may drop directly into the cotton-box of a gin.

I will now describe the oscillating rake. The head of the rake consists of upright oscillating bars P, with horizontal connecting-bars P' running transversely to the machine. The upright bars P are slotted, as shown at *p*, to allow the passage of the bar Q, which forms the axis of oscillation. The bar Q is supported at the end upon arms R, which have bearings upon the axial portions *s* of the crank-shaft S, whose revolution gives motion to the rake. The crank-portion *s'* of the shaft passes through the uprights P of the rake-head, so that the revolution of the crank gives to the lower ends of the uprights a revolutionary motion of greater amplitude than the crank itself. The



construction and operation is such that the teeth  $p$  in their revolution descend near to the feed-roller, and move downwardly and backwardly therefrom in the revolutions, carrying  
 5 back any surplus cotton. The continued revolution carries the teeth upward and backward, releasing the cotton from the teeth, and in the upper semi-revolution the teeth are carried back to the place of beginning, ready to again  
 10 throw back any surplus amount of cotton.

It will be seen that the higher the rake may be the more cotton will pass beneath it, and vice versa.

To regulate the height of the rake, I connect  
 15 to the hubs  $r$  of the arms  $R$  upon each side of the machine a bar or rod,  $T$ , whose lower ends are connected to arms  $U$  upon a shaft,  $V$ . The shaft  $V$  carries an arm,  $W$ , at whose end is a screw-threaded stud,  $w$ , working in the slot  $x$   
 20 of the bracket  $X$ . Upon the end of the stud screws a hand-nut,  $w'$ . The arrangement is such that as lever-arm  $W$  is lowered the rake is raised, and vice versa. The lever is held in  
 25 position by the hand-nut  $w'$ , which bears against the outer side of the bracket  $X$ .

The rod  $Q$  and shaft  $S$   $S'$  have movement under vertical adjustment in guide-slots  $Y$  and  $Y'$ , respectively, in plates  $Z$ .

The machine is driven by a pulley on the  
 30 shaft  $I'$  of the fan  $I$ . This shaft  $I'$  carries two pulleys, whose position is shown at  $I^2$ .

$K$  is a belt running from one of the pulleys at  $I^2$  around the two beater-pulleys  $K^2$  and  $L'$ .

The shaft of beater  $J$  carries at each end  
 35 pulleys connected by cross-belts (one of which is shown at  $K^3$ ) passing around pulleys upon the shaft  $N'$  of the flanged roller  $N$ . One of these pulleys is shown at  $N^2$ .

At  $I^2$  the shaft  $I'$  carries a small pulley, connected by a belt,  $a$ , with a pulley,  $b$ , upon a short shaft,  $c$ , carrying a small friction-wheel,  $e$ . This friction-wheel engages a friction-wheel,  $D^2$ , upon the shaft  $D^3$  of the feed-roll  $D$ . The shaft  $D^3$  of the feed-roller carries a pulley connected, by a belt,  $S^3$ , with a pulley,  $S^2$ , upon the crank-shaft  $S$ . The short shaft  $c$  has bearing  
 45 upon the arm  $h$ , pivoted to the case at  $i$ , so as to allow the friction-wheel  $e$  to be brought in contact with the wheel  $D^2$ , or to be moved  
 50 out of contact therewith. The arm is connected to a screw-rod,  $k$ , passing through a

bracket,  $l$ . Screwing upon the rod  $k$  is a nut,  $m$ , and a hand-nut,  $t$ . Between the nut  $m$  and the bracket is a spiral spring,  $u$ , surrounding the rod, and tending, by pressure against the nut  
 55  $m$ , to establish the frictional contact of the wheels  $e$  and  $D^2$ . The hand-nut  $t$  bears against the outer side of the bracket  $l$ , and may be turned on the rod to draw the friction-wheel  $e$  out of contact with wheel  $D^2$ .  $v$  is a guide-stud  
 60 passing through a slot in the end of arm  $h$ .

$y$  is a bell-crank lever, whose toe  $y'$  bears against the upper end of the arm  $h$  in such a manner that the depression of the long arm of the lever will force the arm outward and carry  
 65 the friction-wheel  $e$  out of contact with the friction-wheel  $D^2$ , and thus stop the feed-roll and the rake and any parts receiving motion therefrom. The beaters, fan, and flanged roller  $N$  would continue to rotate and clear out the  
 70 cotton and dust after the friction device became disengaged.

I claim as my invention—

1. The combination of the rake  $P$   $P'$ , supported on adjustable bar  $Q$  and adjustable  
 75 crank-shaft  $S$ , substantially as set forth.

2. The combination of rake  $P$   $P'$ , adjustable bar  $Q$ , and shaft  $S$ , connected together and to adjusting device  $T$   $U$   $V$   $W$   $X$   $w$   $w'$ , substantially  
 80 as and for the purpose set forth.

3. The combination of feed-apron  $B'$ , feed roller or drum  $D$ , and rake  $P$   $P'$ , having an oscillatory movement, and the lowered edge or teeth having a revolving movement, substantially as  
 85 and for the purpose set forth.

4. The stopping mechanism consisting of the arm  $h$ , friction-wheels  $e$  and  $D^2$ , screw-rod  $k$ , spiral spring  $u$ , and lever  $y$ , substantially as set forth.

5. The combination of the clearing-cylinder  
 90  $N$  for cotton-cleaners, having longitudinal flanges  $n$  projecting from the surface, and the beater  $K$ , substantially as and for the purpose set forth.

6. The combination, with the ribbed roller  
 95  $N$ , of the trash-chamber  $H$ , air-passage  $H'$ , beater or beaters  $J$   $K$ , wire-work  $L$  and  $O$ , flues  $M$ , and fan  $I$ , as set forth.

WILLIAM L. CROWSON.

Witnesses:

SAML. KNIGHT,  
 GEO. H. KNIGHT.