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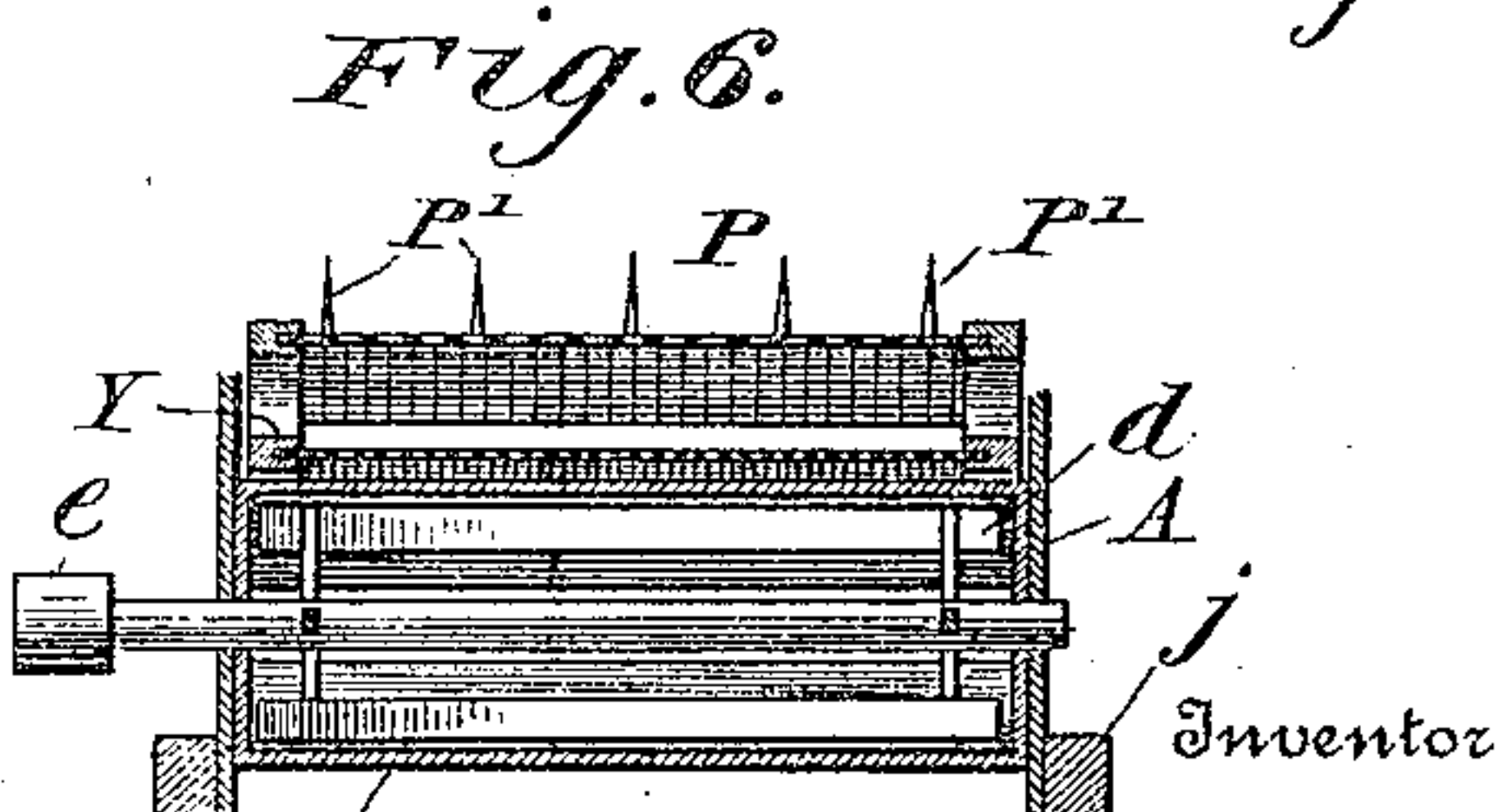
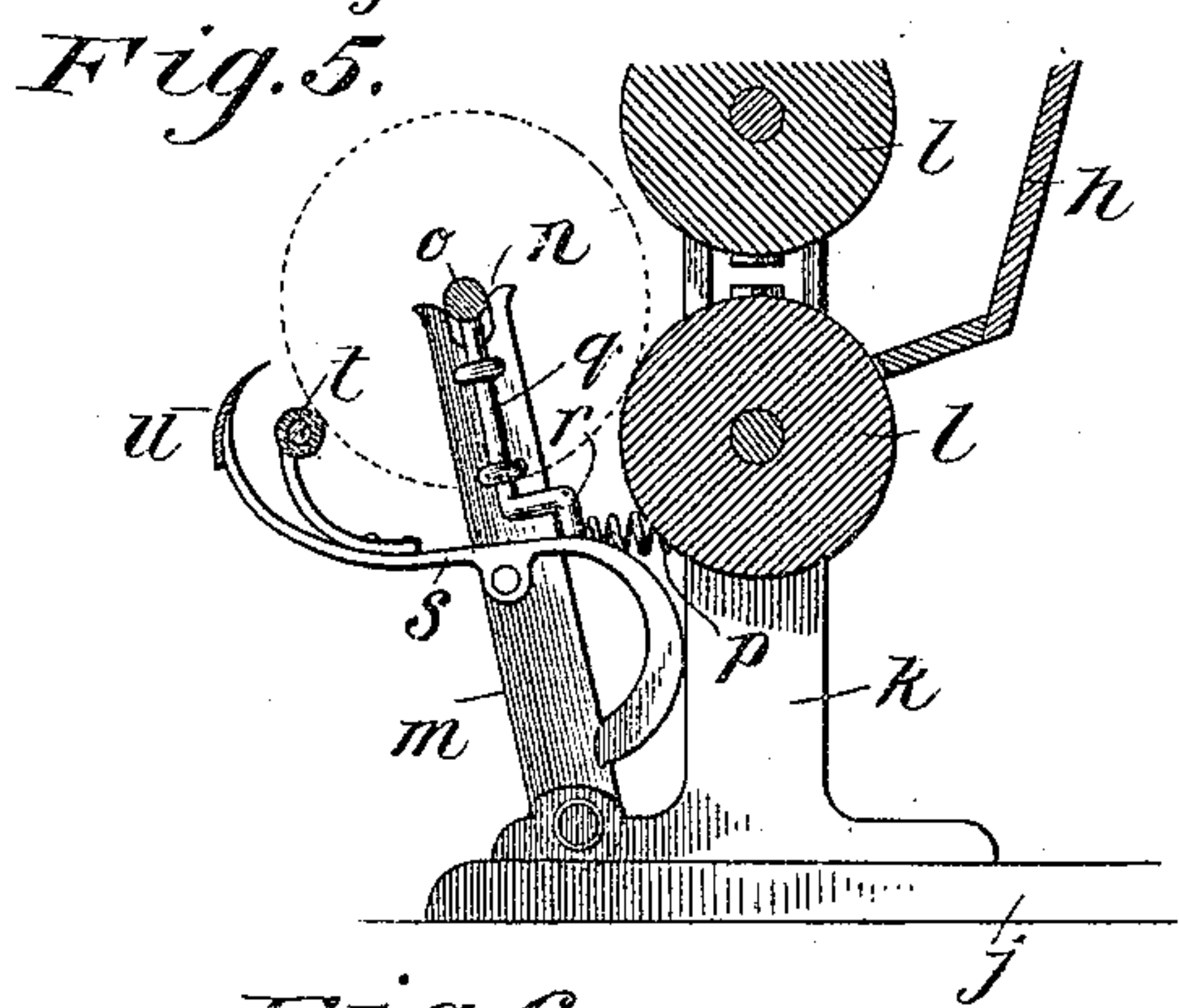
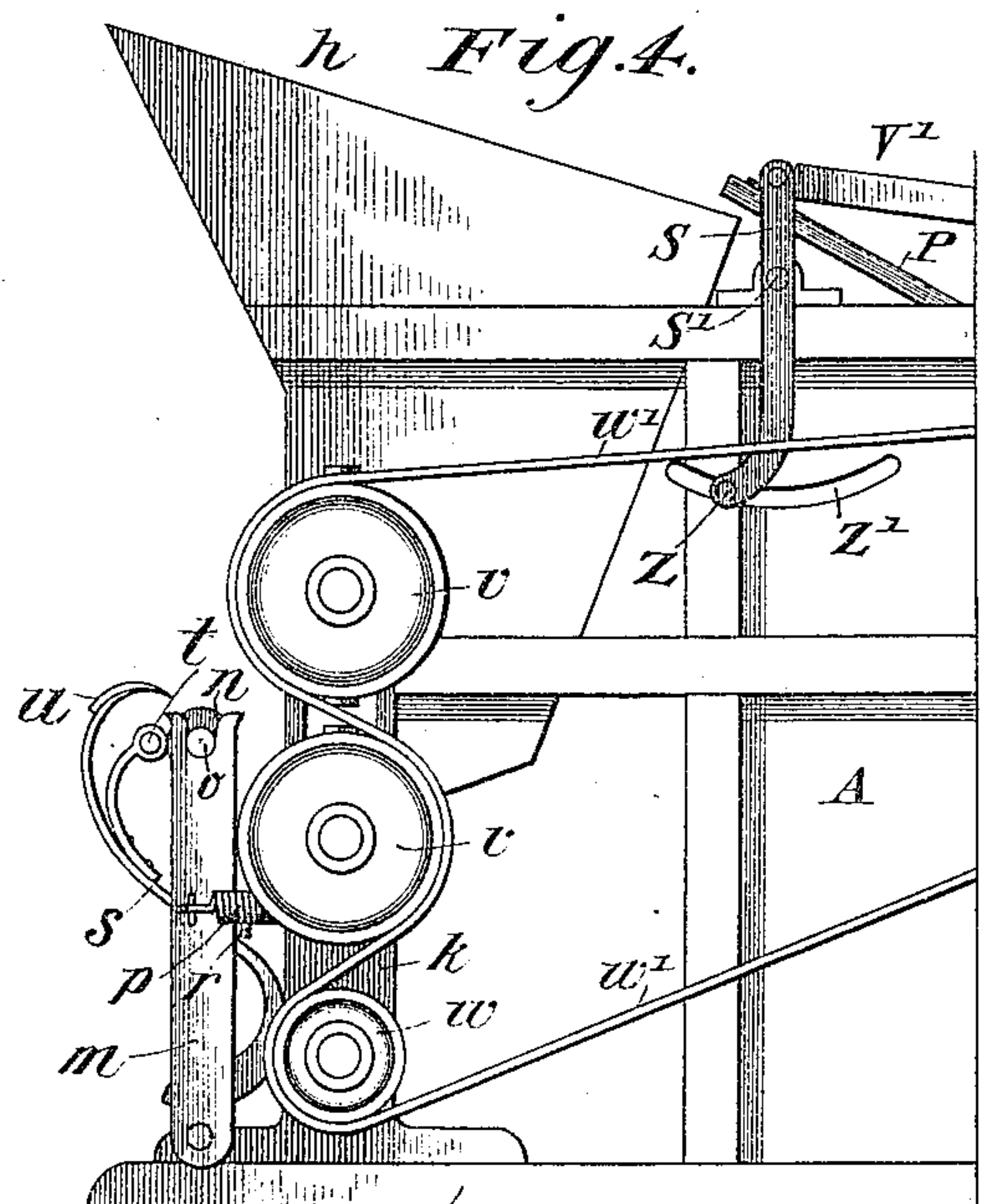
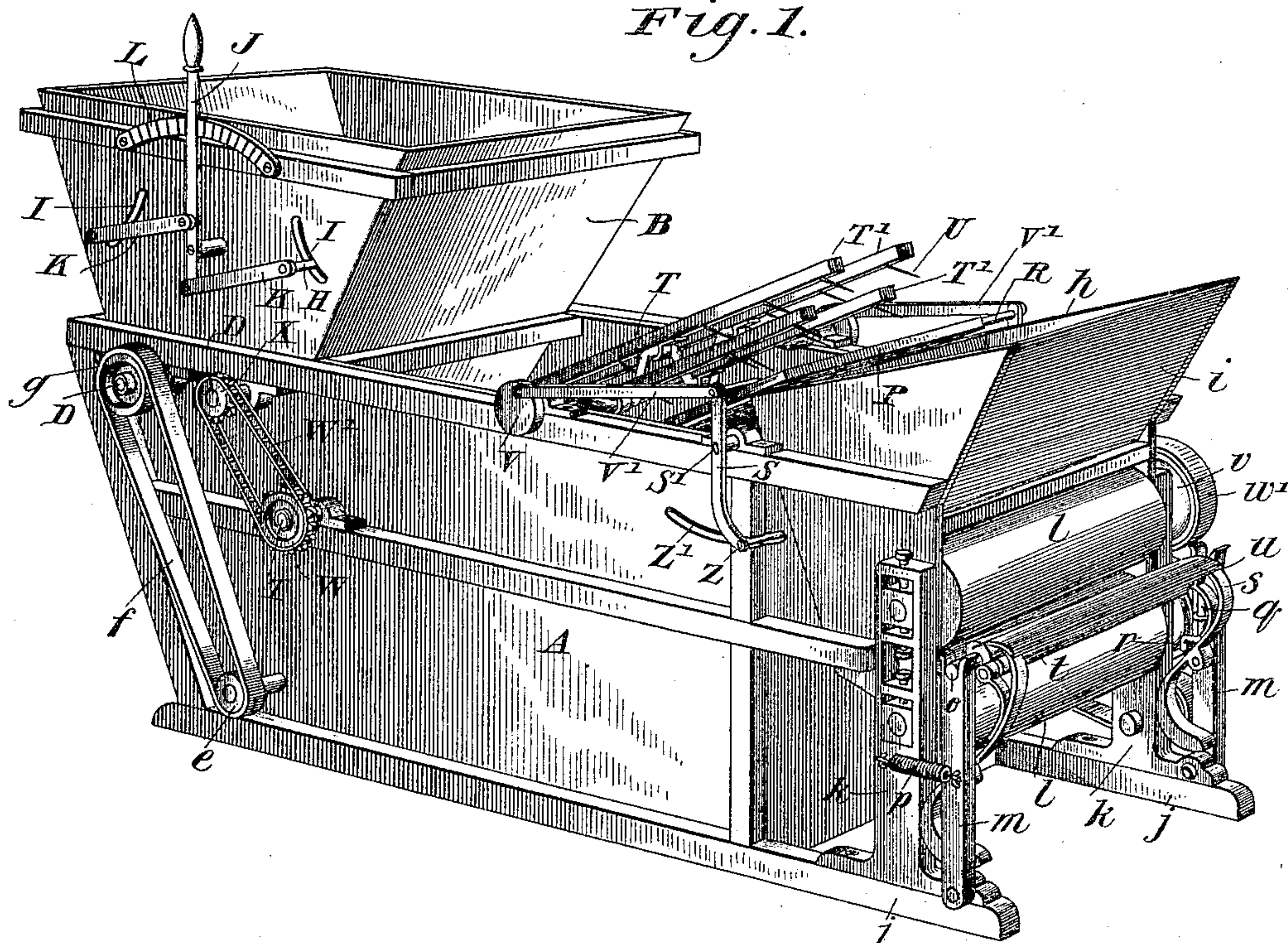
Patented Oct. 4, 1898.

M. S. HILL.  
PEA OR BEAN SEPARATOR.

(Application filed Nov. 20, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses  
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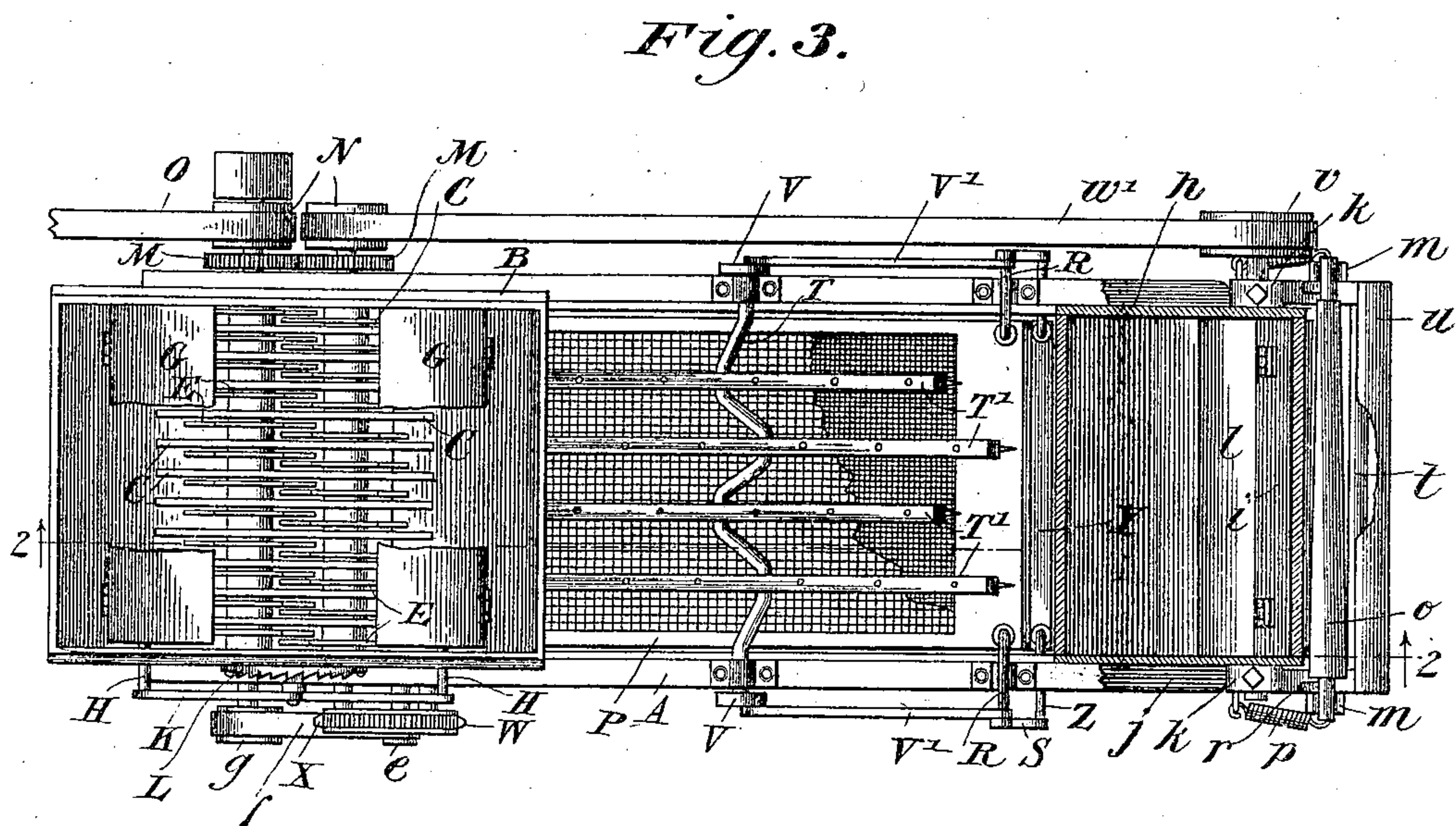
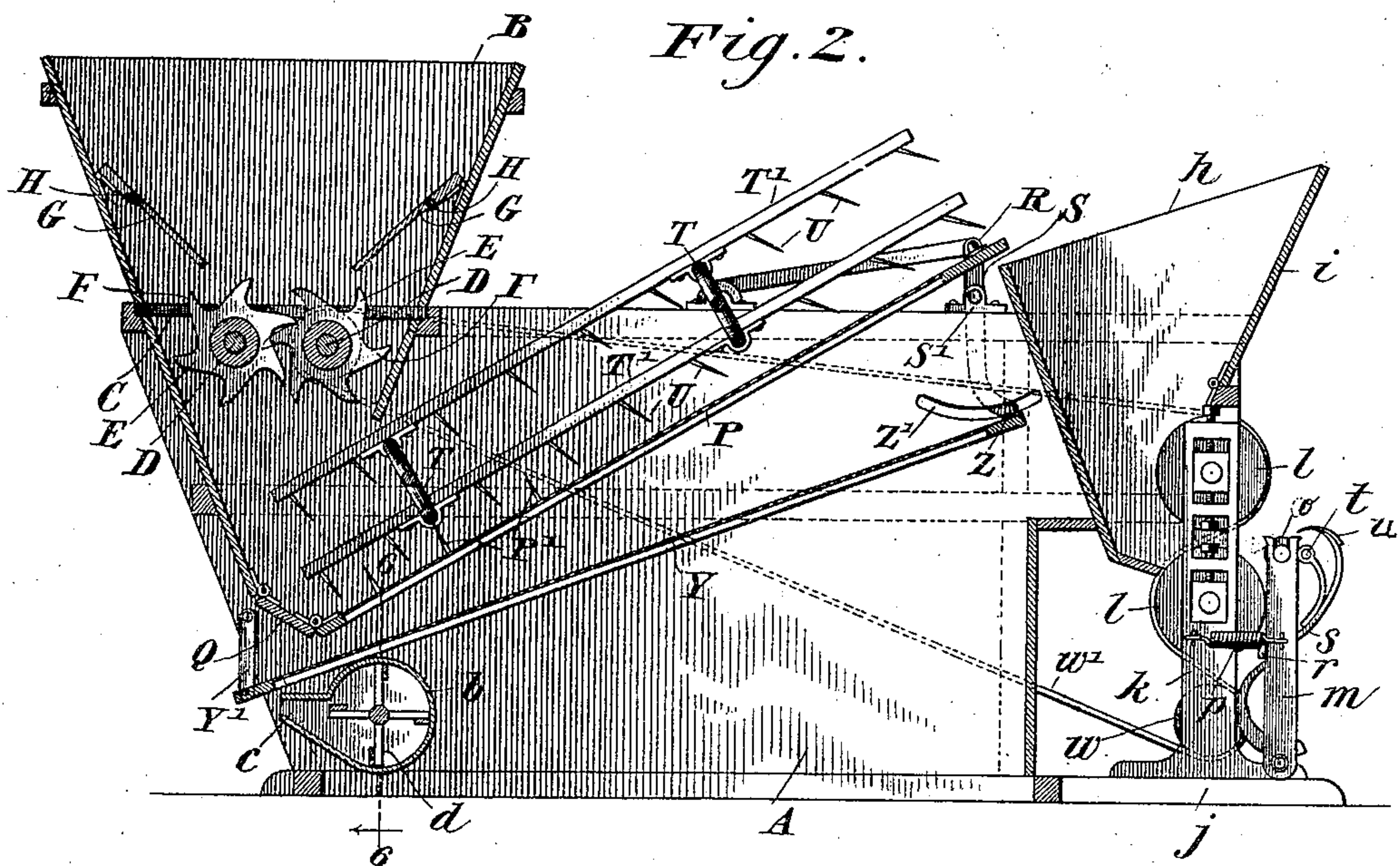
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(No Model.)

2 Sheets—Sheet 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

MELNOTTE S. HILL, OF CANTON, MISSISSIPPI.

## PEA OR BEAN SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 611,785, dated October 4, 1898.

Application filed November 20, 1897. Serial No. 659,334. (No model.)

*To all whom it may concern:*

Be it known that I, MELNOTTE S. HILL, residing at Canton, in the county of Madison and State of Mississippi, have invented a new and useful Pea or Bean Separator, of which the following is a specification.

This invention relates to improvements in pea and bean separators; and the object thereof is to provide a device of simple construction which will receive the vines and separate the peas or beans therefrom and at the same time remove the peas or beans from their pods.

Another object of the invention is to provide means for separating the dirt and other foreign substances from the peas or beans.

Another object is to provide a regulating device for controlling the amount of vines fed to the separators.

A further object of the invention is to provide a device for condensing or compressing the vines and pods into a continuous sheet and winding the same upon a bobbin or core.

A further object is to provide mechanism for automatically removing the roll or ball of fiber from the machine when it has reached a certain size.

A still further object is to provide an automatically-operating cutting mechanism for severing the roll or ball from the fibrous sheet while being fed from the condensing-rolls.

With the above objects in view the invention consists of feeders and shellers arranged in a casing adapted to receive the vines from the hoppers and remove the pods therefrom and at the same time remove the peas or beans from the pods and feeding the same to a vibratory screen, where the vines are engaged by a conveyer and conveyed to condensing-rolls at the opposite end of the machine, the beans or peas passing through the meshes of the screen and falling upon a screen having smaller meshes and arranged beneath the first-named screen, said screen being vibratory, so that the dirt and foreign substances pass therethrough and the peas or beans are conveyed to the lower end thereof, where they are subjected to a current of air from a revolving fan, so that all the dirt is effectively removed therefrom. Arranged in rear of the condensing-rolls is a bobbin-holder adapted to receive the bobbin upon which the fibrous

sheet is to be wound, said bobbin-supports being pivoted at their lower ends so as to swing outward as the roll increases in size and having pivoted thereto tripping-arms which automatically operate the roll or bale and remove the bobbin from the supports when the bale has reached a certain size, said tripping-arms carrying a cutting-blade which severs the bale from the sheet fed from the condensing-roll as said bale is automatically removed from the machine.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is a vertical longitudinal view taken on the line 2 2 of Fig. 3. Fig. 3 is a top plan view. Fig. 4 is an enlarged side elevation of the rear end of the machine, showing the condensing-rolls, the view being taken from the opposite side from that shown in Fig. 1. Fig. 5 is a sectional detail view of the condensing-rolls and the bobbin mechanism. Fig. 6 is a sectional detail view taken on the line 6 6 of Fig. 2.

Referring to the accompanying drawings, A indicates a casing having a hopper B mounted thereon at its front end, and arranged in said hopper are a series of bars C, extending entirely across the opening thereof.

D are transversely-extending shafts journaled in the casing beneath the bars C and having arranged thereon the disks E, upon which are formed the teeth or feeding and shelling fingers F. The disks on the two shafts are arranged out of line with each other, the disks of one shaft projecting between those of the opposite shaft, there being a pair of disks arranged between each pair of bars C, as clearly illustrated. The function of these disks is to engage the vines placed in the hopper, draw the same downward through the bars, at the same time removing the peas or beans from the pod and breaking the vines. It will be noticed that the fingers upon the respective series of disks are curved oppositely—that is, toward each other—in which direction the shafts are revolved.



For controlling the amount of vines fed to the said disks I provide the sections G, which are hinged to opposite side walls of the hopper and have pins H projecting from their ends, which extend through and are movable in curved slots I, formed in the side wall of the hopper.

An operating-lever J is pivoted adjacent its lower end upon the exterior of the hopper, and pivotally connected thereto on opposite sides of its pivotal point are the links K, which at their opposite ends are secured to the projecting pins of the respectively-hinged sections, a ratchet-bar L being provided to be engaged by the operating-lever, whereby said lever is held in position. When this lever is operated, the hinged sections are swung either upwardly or downwardly, diminishing or increasing the size of the inlet to the hopper. The shafts D have adjacent one end the intermeshing gears M and the belt-wheels N, one of said wheels receiving a belt O from the motive power, by means of which the machine is operated.

P is a screen having large meshes formed therein and hinged at its lower end to an inclined board Q, which is in turn hinged to the lower end of the front wall of the hopper, which extends within the casing. Projecting from opposite sides of this screen at its upper end are the pins R, which are pivoted in the upper ends of the levers S, which are immediately pivoted upon the upper edge of the casing, as illustrated at S'. Mounted in the casing above the screen P are the crankshafts T, having a plurality of cranks formed thereon, and pivotally mounted upon said cranks are the bars T', having on their under sides therearwardly and downwardly extending fingers U, the same constituting conveyers for conveying the vines upward to the rearward end of the machine.

Upon the ends of the upper crank-shaft are the disks V, to which one end of the links V' are eccentrically pivoted, the opposite ends of said links being pivoted to the upper ends of the intermediately-pivoted levers S. On the end of the lower crank-shaft is a chain-wheel W, over which passes a chain W', said chain also passing around a chain-wheel X on the end of one of the shafts D. Arranged beneath the screen P is a second screen Y, having its meshes finer than those of said screen P, the lower end of screen Y being pivoted to links Y', which in turn are pivoted to the casing. At the upper end of said screen are the pins Z, which extend through and move in curved slots Z', formed in the side walls of the casing, the ends of said pins being connected with the lower ends of the intermediately-pivoted levers S.

The operation of the above-described construction is as follows: The vines are placed in the hopper and engaged by the fingers of the oppositely-revolving disks, drawn downwardly through the bars, the vines being broken and the peas or beans partially re-

moved from the pods. The vines and the peas or beans pass downward, where they are engaged by the conveyers T' and moved upwardly to the rearward end of the machine. These conveyers are operated by the crankshafts, so that the fingers U thereof engage the vines, move the same upwardly, and are then disengaged therefrom and moved forwardly to again engage the vines and continue the upward movement thereof. In the meantime the peas or beans have fallen through the meshes of the first screen, which is being vibrated, upon the second screen, which is also being oscillated. The beans or peas then pass downward to the lower end of said screen, the dirt and foreign substances being removed therefrom by the movement of the screen. To further remove the beans or peas from the pod, I provide the fingers P', which project upwardly from the screen P at its lower end.

Arranged adjacent the front end of the casing and beneath the screen Y is a circular casing b, having an outlet c, in which is arranged a rotary fan d, the shaft thereof projecting through the casing and having a belt-wheel e to receive a belt f from a belt-wheel g upon the end of one of the shafts D. Thus all dirt is removed from the beans or peas as they pass from the lower end of the oscillating screen Y by the rotary fan.

At the rear end of the casing is a hopper h, having the upper portion of its outer wall i hinged so that the same can be swung inwardly to close the inlet to the hopper. This hopper is arranged at the upper end of the screen P and receives the vines and pods therefrom. Mounted upon the projecting ends of the lower longitudinal bars j of the casing are the standards k, in which the condensing-rolls l are journaled and are adjustable vertically, said rolls being in position to receive the vines from the hopper h and compress the same into a continuous sheet. Pivoted at their lower ends to the feet of the standards are the bobbin-supports m, which are notched at their upper ends, as at n, to receive the bobbin o or core upon which the vines are wound. Coiled springs p are connected at one end to the supports and at their opposite ends to the standards and serve to hold the supports normally vertical and permit the same to swing outwardly as the roll upon the core or bobbin increases in size.

Rods q are movable vertically in loops carried by the bobbin-supports and have their upper ends engaging the bobbin or core and their lower ends formed angular, as illustrated at r, the lower extremities thereof being engaged by the intermediately-pivoted tripping-levers s, which are pivoted to the supports and have their lower ends curved and weighted, so that the roller t, mounted adjacent their upper ends, is kept in engagement with the roll upon the core. Upon the upper curved ends of these arms is a cutting-blade u for the purpose of severing the roll from



the fibrous sheet when the former is automatically removed from the supports. The belt-wheels *v* are carried by the shafts of the condensing-rollers, while the belt-wheel *w* is mounted upon one of the standards, said belt-wheels receiving the belt *w'*, which passes therearound and around the belt-wheel *N*, carried by one of the shafts *D*. Thus motion is imparted to the condensing-rolls, so that the vines are compressed into a fibrous sheet and fed therefrom to the bobbin, said bobbin being revolved by frictional contact with the lower roller of the condensing-rolls.

The operation of this part of my invention is as follows: The vines and pods after the peas or beans have been removed therefrom are conveyed by the conveyer to hopper *h* and pass downward to the condensing-rolls, where a continuous fibrous sheet is formed, which is fed from the rolls and wound upon the bobbin. As the bobbin increases in size the supports therefor are forced outward against the tension of the coiled springs, and at the same time the lower ends of the tripping-levers are raised through the medium of the engagement of the roll upon the bobbin with the roller *t* at the upper ends of the arm. This upward movement of the lower ends of the arms raises the sliding rods *q*, so that when the roll has reached a certain size the bobbin will be disengaged from the supports and fall therefrom. When the bobbin, with the roll thereon, falls from the supports, it engages the cutting-blade carried by the tripping-levers, which severs the roll from the sheet being fed from the machine. The supports are held in position to receive a new bobbin by the engagement of the curved arms with the standards. As soon as the new bobbin is placed therein and the upper ends of the arms moved to disengage their lower ends from the standards the spring will draw the bobbin-supports into their normal positions.

From the above description it will be seen that I have produced a machine in which the beans or peas are separated from the pods and the vines and pods condensed into a fibrous sheet, which is wound into a roll and automatically removed from the machine, the device being extremely simple in construction and effective in operation.

While I have illustrated and described the best means now known to me for carrying out my invention, I wish it to be understood that I do not limit myself to the exact construction shown and described, but hold that any slight changes such as might occur to the ordinary mechanic will properly fall within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described, the combination with a hopper having hinged sections positioned therein and adapted to vary the size of the outlet thereof, of an in-

termediately-pivoted operating-lever for raising or lowering said sections, and links connected to said hinged sections and to the intermediately-pivoted lever on opposite sides of its pivot, substantially as set forth.

2. The combination in a machine of the character described, of a hopper, hinged sections therein and having pins projecting therefrom through slots in the walls of the hopper, a lever intermediately pivoted to the hopper, links secured at one end to the projecting pins of the sections and at their opposite ends pivoted to the lever on opposite sides of its pivotal point, and means for retaining said operating-lever in the desired position, substantially as set forth.

3. In a machine of the character described, the combination with a casing, of a screen pivoted at one end thereto, levers intermediately pivoted to said casing and pivotally connected at one end to the opposite end of said screen, a second screen pivotally connected by links at its lower end to the casing and having pins projecting from its upper end which are connected to the lower ends of said intermediately-pivoted levers, crank-shafts, bars pivoted to the cranks thereof and carrying a plurality of fingers, and links pivotally connecting the upper ends of said intermediately-pivoted levers and one of said crank-shafts, substantially as set forth.

4. In a machine of the character described, the combination of condensing-rolls adapted to compress the vines and feed the same therefrom in a continuous sheet, a core or bobbin mounted in suitable supports and adapted to receive said fibrous sheets, and means for automatically removing said bobbin from its supports when a sufficient quantity of fibrous sheet has been wound thereon, substantially as set forth.

5. In a machine of the character described, the combination with the condensing-rolls, of bobbin-supports, a bobbin supported thereby and adapted to receive the fibrous sheet from the condensing-rolls, rods carried by said bobbin-supports and movable thereon, said rods adapted by their upward movement to disengage the bobbin from its supports, and tripping-levers automatically operated by the fibrous roll for effecting said upward movement of the rods, substantially as set forth.

6. In a machine of the character described, the combination with supporting-standards, of condensing-rolls mounted thereon, bobbin-supports pivoted at their lower ends to the machine-frame, springs connected at one end to said supports and at their opposite ends to the standards, a bobbin journaled in the upper ends of said supports, tripping-levers intermediately pivoted to said supports and carrying a roller at their upper ends which is adapted to bear against the roll upon the bobbin whereby said levers are automatically operated by the roll, and vertically-movable rods carried by said supports and adapted to



be moved by the tripping-levers and disengage the bobbin from its supports, substantially as set forth.

7. In a machine of the character described,  
5 the combination with the condensing-rolls, of bobbin-supports, a bobbin supported thereby and adapted to receive the fibrous sheet from the condensing-rolls, means for disengaging the bobbin from its supports, and tripping-  
10 levers for actuating said means, said levers being operated by the fibrous roll upon the bobbin as the same increases in size, substantially as described.

8. In a machine of the character described,

the combination with the condensing-rolls, of 15 bobbin-supports, a bobbin supported thereby and adapted to receive the fibrous sheet from the condensing-rolls, means for removing said bobbin from its supports when the roll thereon has reached a certain size, and a knife adapted 20 to automatically sever the roll from the fibrous sheet being fed from the condensing-rolls when the bobbin is removed from its supports, substantially as described.

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A. P. ORRICK.