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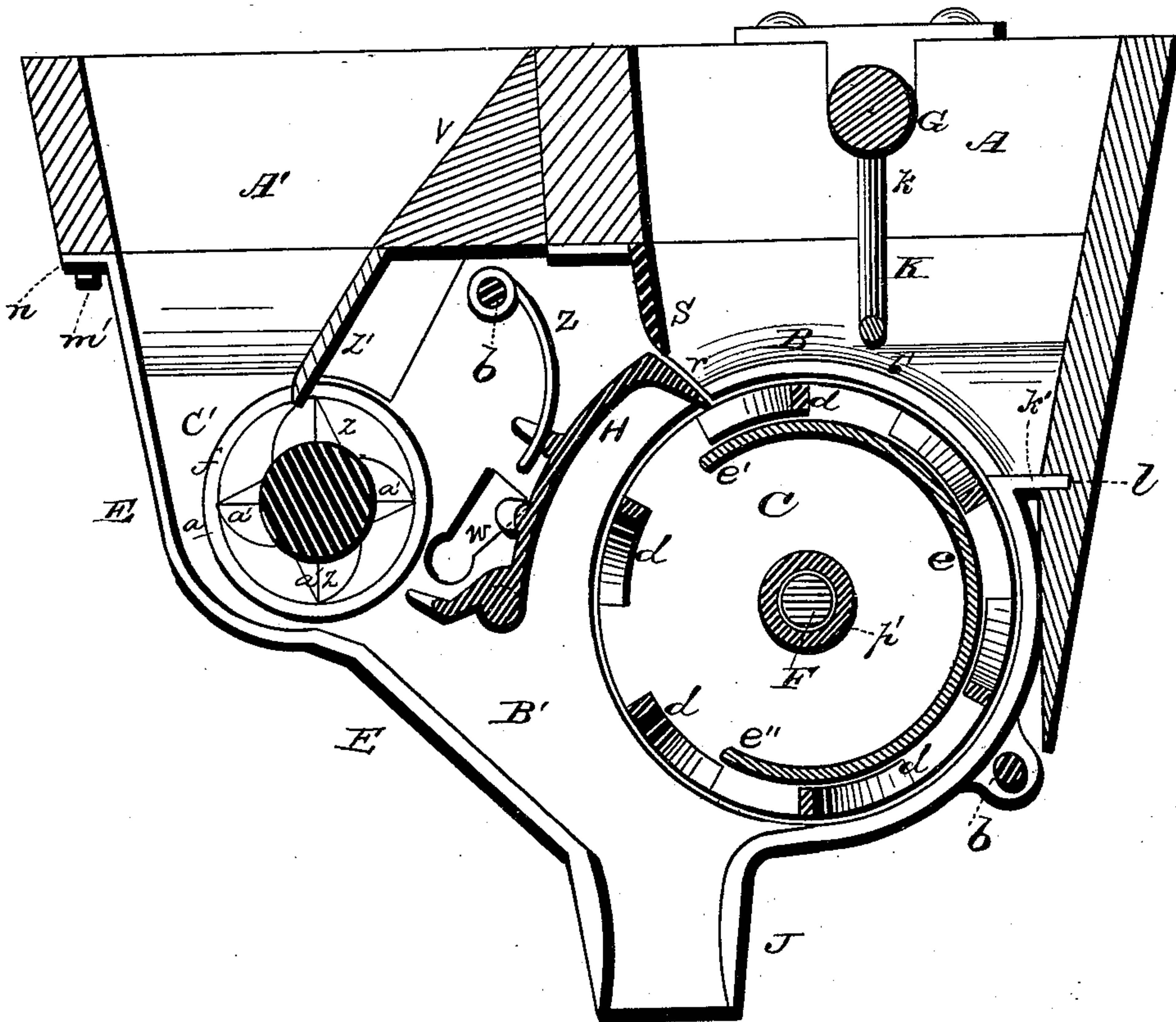
3 Sheets—Sheet 1.

H. C. PRATT.  
GRAIN DRILL ATTACHMENT.

No. 284,572.

Patented Sept. 4, 1883.

*Fig. 1.*



WITNESSES  
*E. H. Bates.*  
*Philip LeMassie.*

INVENTOR  
*H. C. Pratt*  
by *Andrew Smith*  
his ATTORNEYS

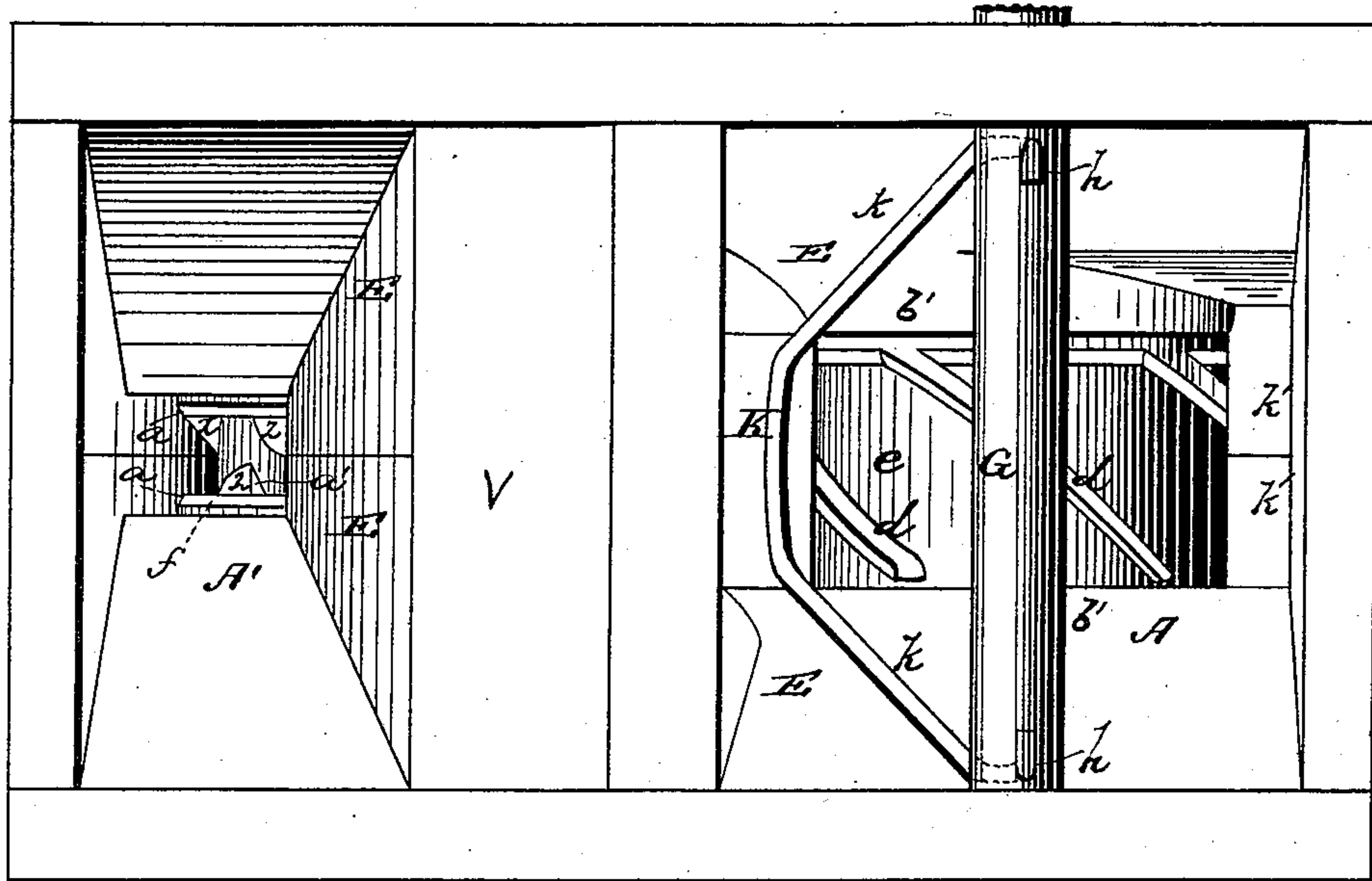
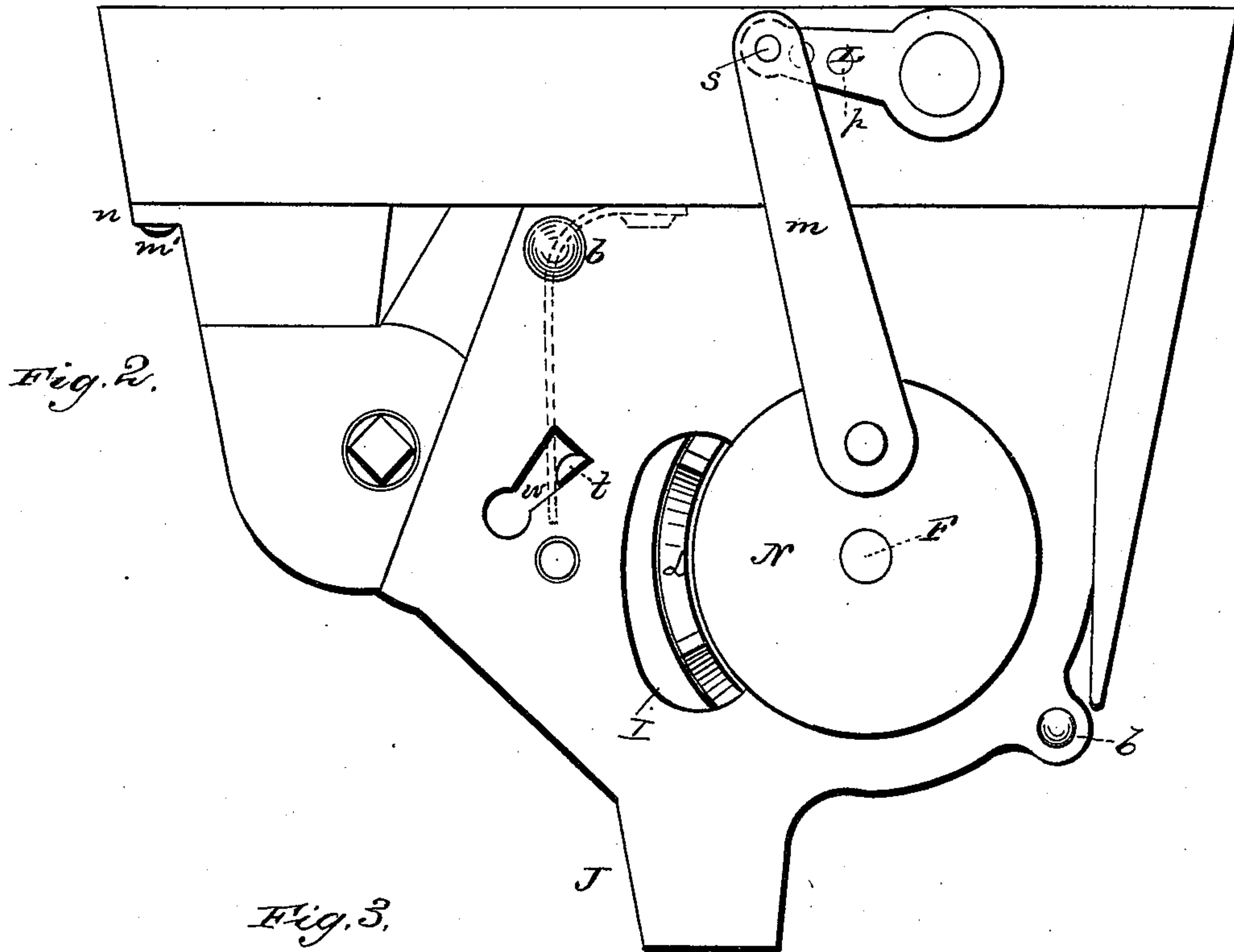
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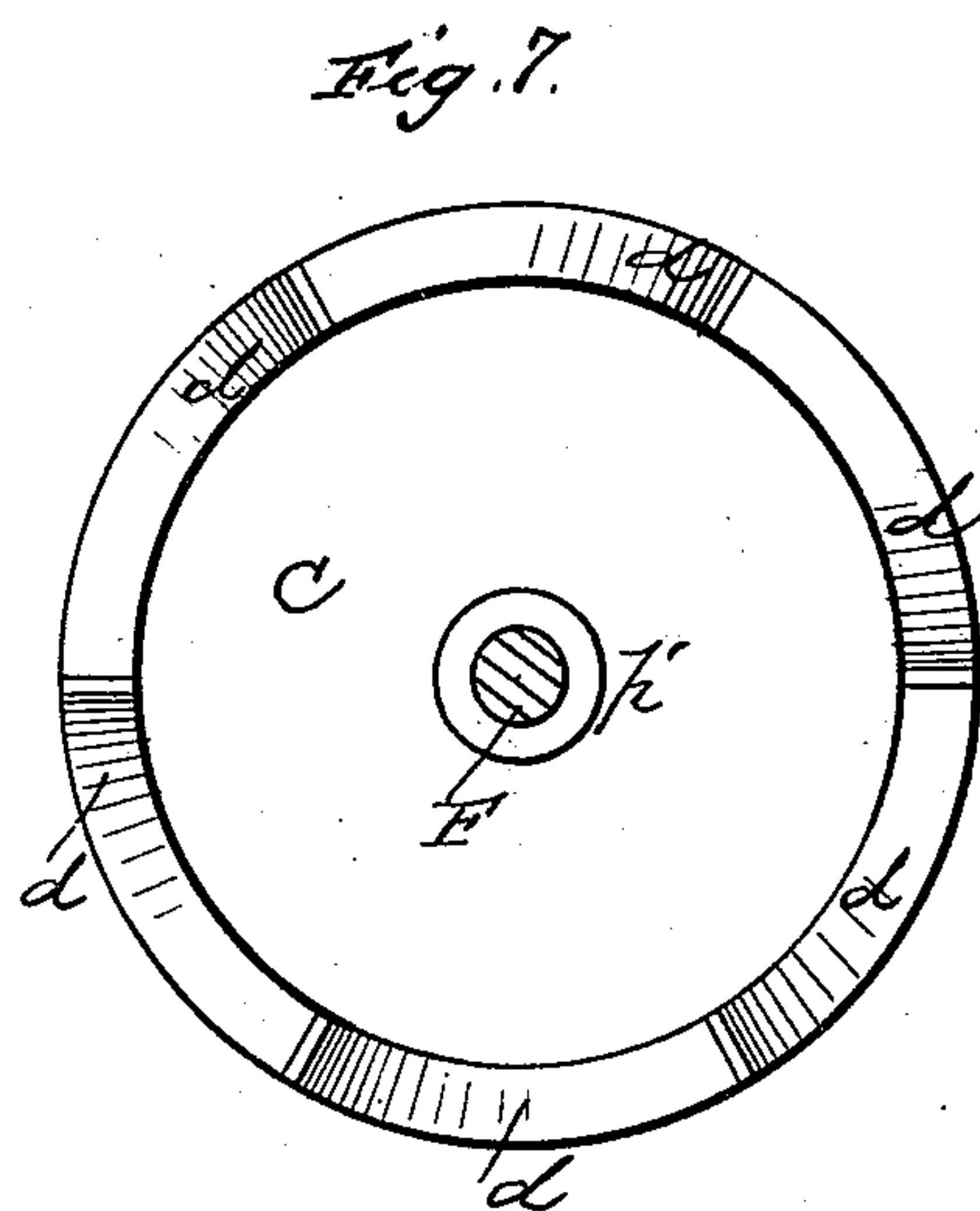
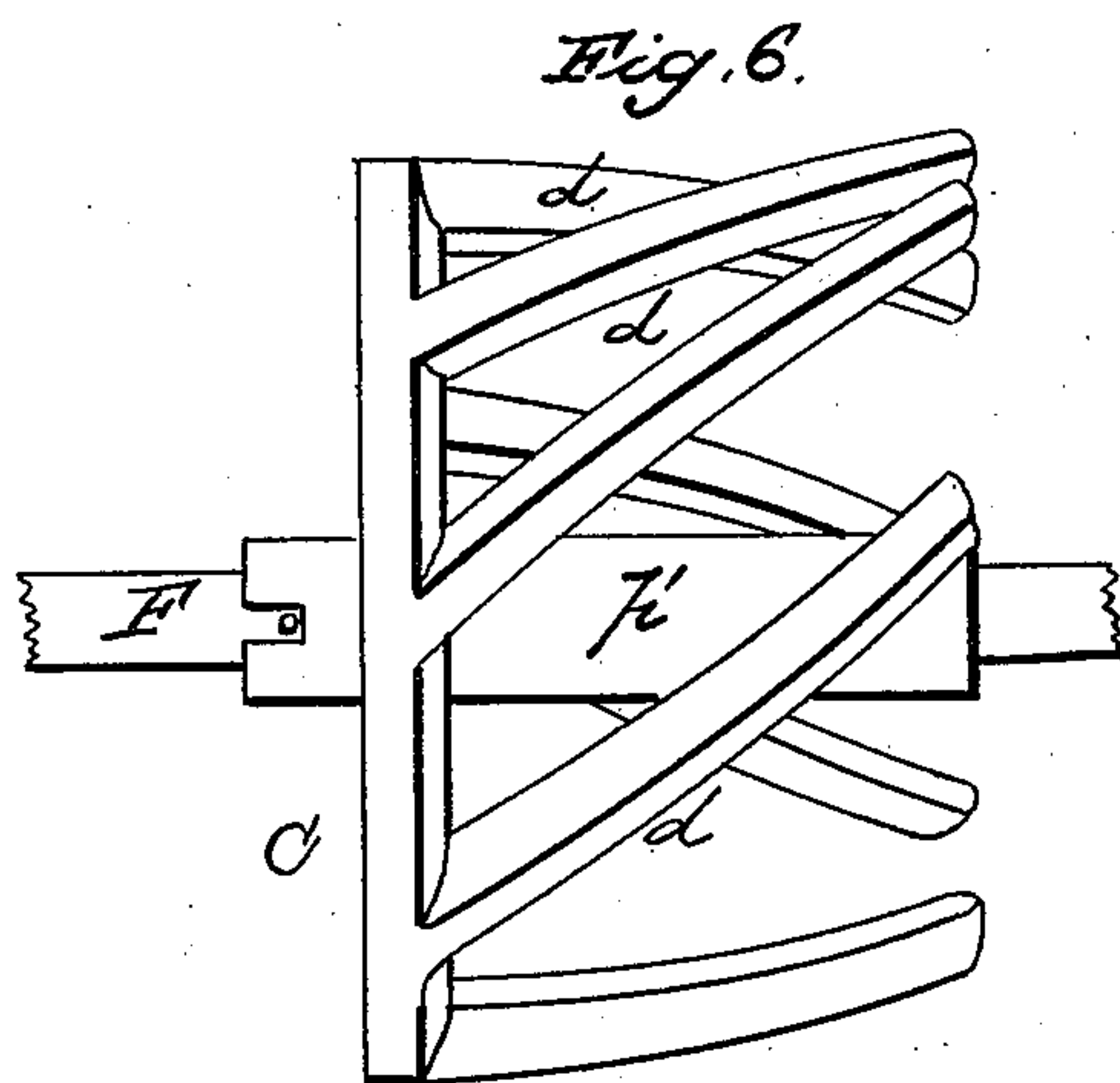
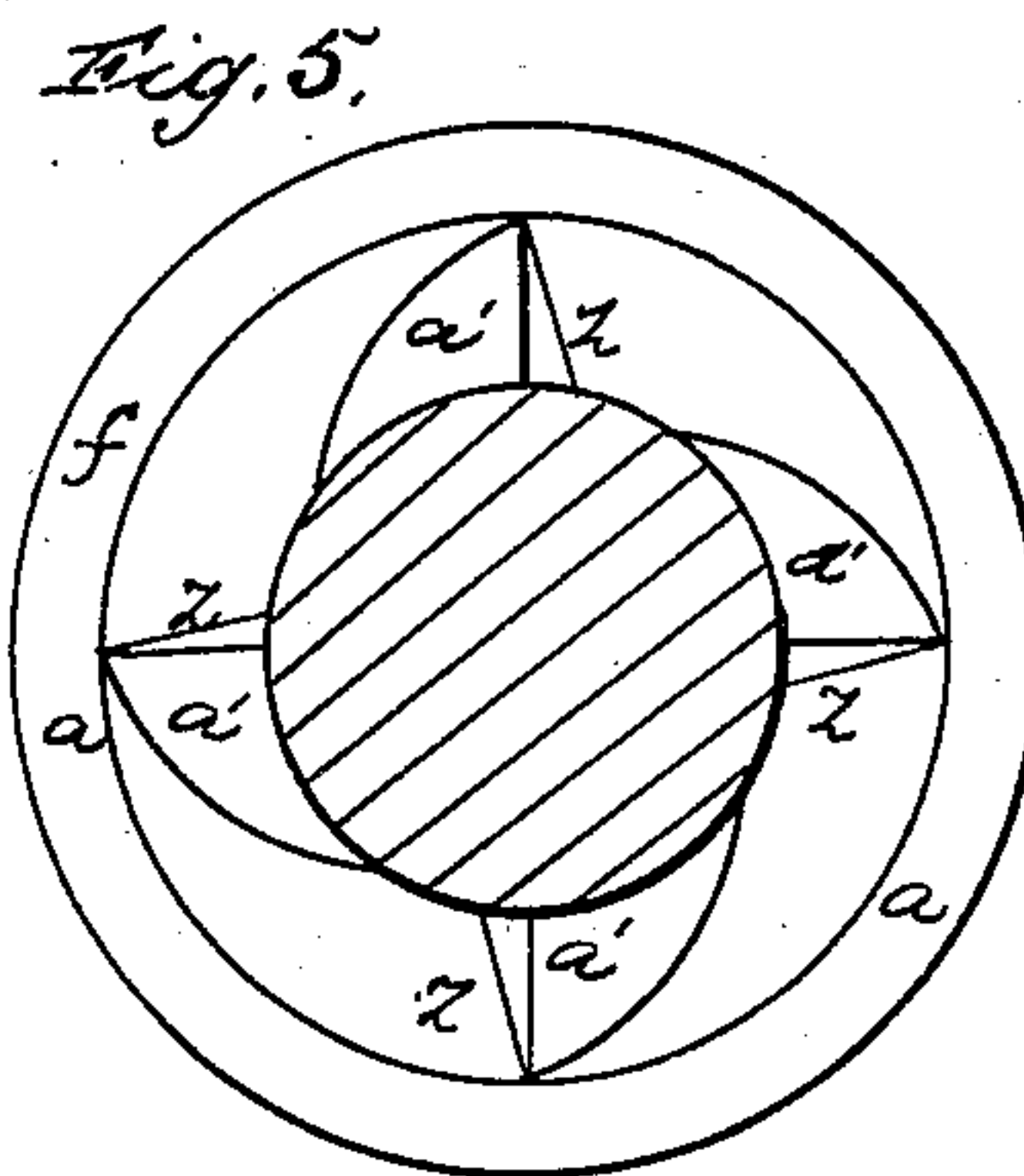
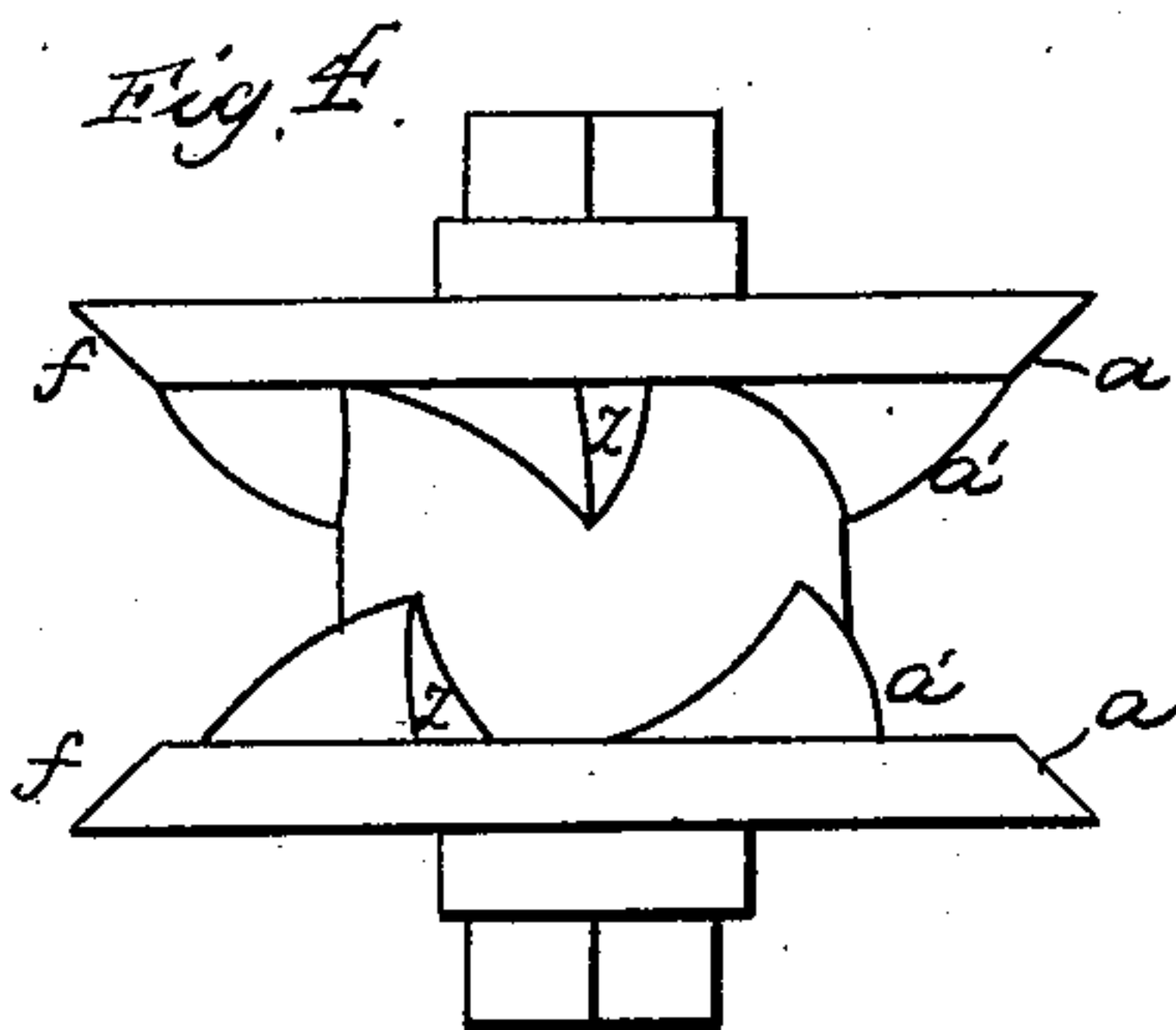
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Patented Sept. 4, 1883.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

HENRY C. PRATT, OF CANANDAIGUA, NEW YORK.

## GRAIN-DRILL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 284,572, dated September 4, 1883.

Application filed February 15, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. PRATT, a citizen of the United States, residing at Canandaigua, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Grain-Drill Attachments; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical sectional view of my attachment. Fig. 2 is a side view, and Fig. 3 is a plan view. Figs. 4, 5, 6, and 7 are views of the several feed-wheels.

This invention has relation to attachments to grain-drills for distributing fertilizing material; and it consists in the construction and novel arrangement of devices, as hereinafter set forth, and particularly pointed out in the appended claims.

In the accompanying drawings, the letter A designates the hopper, in which the fertilizing material is placed, said hopper having a throat-passage, B, and a rotary distributor, C, having oblique arms *d*, working around a cylinder-bearing, *e*. Each distributing-tube of the drill is designed to be provided with a hopper, A, and rotary distributor C, the distributors being all secured on the same horizontal shaft F. The seed-hopper A' is in communication with the main discharge at B', through which the fertilizing material is also designed to pass.

G indicates a wooden shaft, having its bearings in the sides of the frame of the drill. This shaft is so placed that it does not touch the upper edges of the hopper-walls, and yet is as close thereto as possible. In this shaft are made a number of perforations, *h h*, two being provided over each hopper and near the walls thereof, as indicated in the drawings. In the perforations *h h* are secured the ends of the wire agitator K. This wire agitator is made with sloping end portions, *k k*, and is designed to conform as nearly as possible in its shape to the contour of the hopper-wall. It is retained in position by bending the ends

of the wire down against the shaft. The inclined portions *k k* form sufficient stops to prevent the wire from being pushed up through the shaft. This agitator works so closely to the sloping sides of the hopper that it causes nearly all of the fertilizing material to be discharged. The elasticity of the wire prevents it from being broken or permanently bent should it come in contact with a stone or other hard substance. The wire is preferably small, as it will pass more easily through lumps of fertilizing material than large wires, and will therefore more effectually pulverize the material. The wooden shaft is provided with a crank, L, at its end; which is connected by the pivoted link or bar *m* to a wrist-pin on the gear-wheel N on the shaft F, to which the distributors are connected. The crank-arm L is made with a series of perforations, *p*, for the pivot-pin *s*, in order to provide for the adjustment of the connection *m* to give the agitator more or less sweep, according to the condition of the fertilizing material.

The castings which form the fertilizer-hopper A and the grain-hopper A' are made in two lateral sections, E E, which are connected by transverse bolts *b*. This involves, practically, no more expense than in making either hopper alone, and it provides a rigid connection between the hoppers, preserving their relative position. In the wall of the throat B an expansion, *b'*, is formed above the lateral opening I, whereby it is designed to obviate breakage, as ample room for obstructive articles is provided, these obstructions passing out through the lateral opening; or, if the throat does not clear itself, ready access is afforded by said opening for removing the obstructions. The discharge ends of the castings, at B', are flanged, as indicated at J, to provide bearings for the attachment of the distributing-tube. The castings are provided with projecting flanges *k'*, which engage a groove, *l*, in the board which forms the rear wall of the fertilizer-box. At the other end the castings are provided with perforated lugs *n*, through which a screw, *m'*, passes, connecting the castings to the grain-feed box.

The bearing *e* is not a full cylinder, but is partial only, being deficient in rear, so that it has an upper end or delivery-margin, *e'*, and



a lower or guard end,  $e''$ . The delivery end  $e'$  is formed oblique to the lateral walls of the throat, which conduces, in connection with the operation of the backwardly-inclined distributing-arms  $d$ , to the uniform discharge of the fertilizing material over the edge  $e'$  into the throat. The lower edge,  $e''$ , of the cylinder-bearing is brought forward over the sloping bottom of the casting to the upper opening of the main discharge  $B'$ , and forms a guard to prevent the lodgment of nails or other hard substances, which would be apt to break or injure the feeding devices. The upper end,  $e'$ , of the cylinder-bearing also extends forward beyond the flange of the throat-plate  $H$ , and serves to assist in holding back the fertilizing material, which, when the drill is not in gear, is apt to settle under the throat-plate and escape, especially if it is fine and dry. The arms  $d$  of the distributor are inclined backward, not only for the reason hereinbefore mentioned, but also because, in connection with the slope of the hopper-bottom to the edge of the cylinder-bearing, it is made almost impossible for a nail or like article to get in such position that the arms will not either carry it through the throat or pass under it.

It is preferred to have the rotary disk  $C$  of the distributor made with a hub,  $p'$ , which engages by its end the inside wall of the casting, and serves to hold the disk and arms in position, so that they cannot bind when the distributor is in operation.

The casting is usually provided with a flange or guard,  $S$ , extending outward from the margin of the opening  $r$ , in which the rotary disk moves, in order to provide room for said disk, so that it will not bind, and at the same time to prevent waste of the fertilizing material.

The spring  $Z$ , used over the throat-plate  $H$ , is usually attached to one of the bolts  $b$ , which hold the sectional castings together; or a flat spring may be used, the same being conveniently attached by a screw or nail to the bottom of the transverse piece  $V$  of the framing, which extends between the grain-box and the fertilizer-box.

The throat-plate  $H$  is formed with lateral stop-lugs  $t$ , which extend through slots  $w$ , made in the side walls of the castings, and provide stops which limit the movements of said throat-plate.

The seeding device, arranged in the chamber  $C'$ , between the castings, consists of a wheel having marginal flanges  $f$  extending in the planes of its sides, and between these flanges intermediate partial teeth,  $z$ , alternately extending from each flange toward the central plane of the wheel. The inner portions of the margins of the flanges are beveled, as indicated at  $a$ , and the walls  $a'$  of the teeth slope toward the inner walls of the flanges, as indicated in the drawings. The teeth  $z$  are sloped well forward, and are designed to prevent cracking the larger grain in feeding, being especially adapted for use in planting corn, peas, and beans. By arranging the teeth alternately in reference to the flanged sides of the wheel it is caused to sow the grain in an even and uniform manner. The grain is prevented from escaping over the back of the wheel by means of guard lugs or projections  $z'$ , formed on the lower edge of the rear wall of the grain-hopper.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The expansion  $b'$  of the upper portion of the throat  $B$ , and the lateral opening  $I$  in the throat-wall below said expansion, substantially as specified.

2. The partial cylinder-bearing  $e$ , having the upper oblique end,  $e'$ , and the lower end,  $e''$ , substantially as specified.

3. The throat-plate  $H$ , having the lateral stop-lugs  $t$ , adapted to engage slots formed in the side walls of the hopper-castings, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY C. PRATT.

Witnesses:

HARVEY PRATT,  
MARGARET CARR.