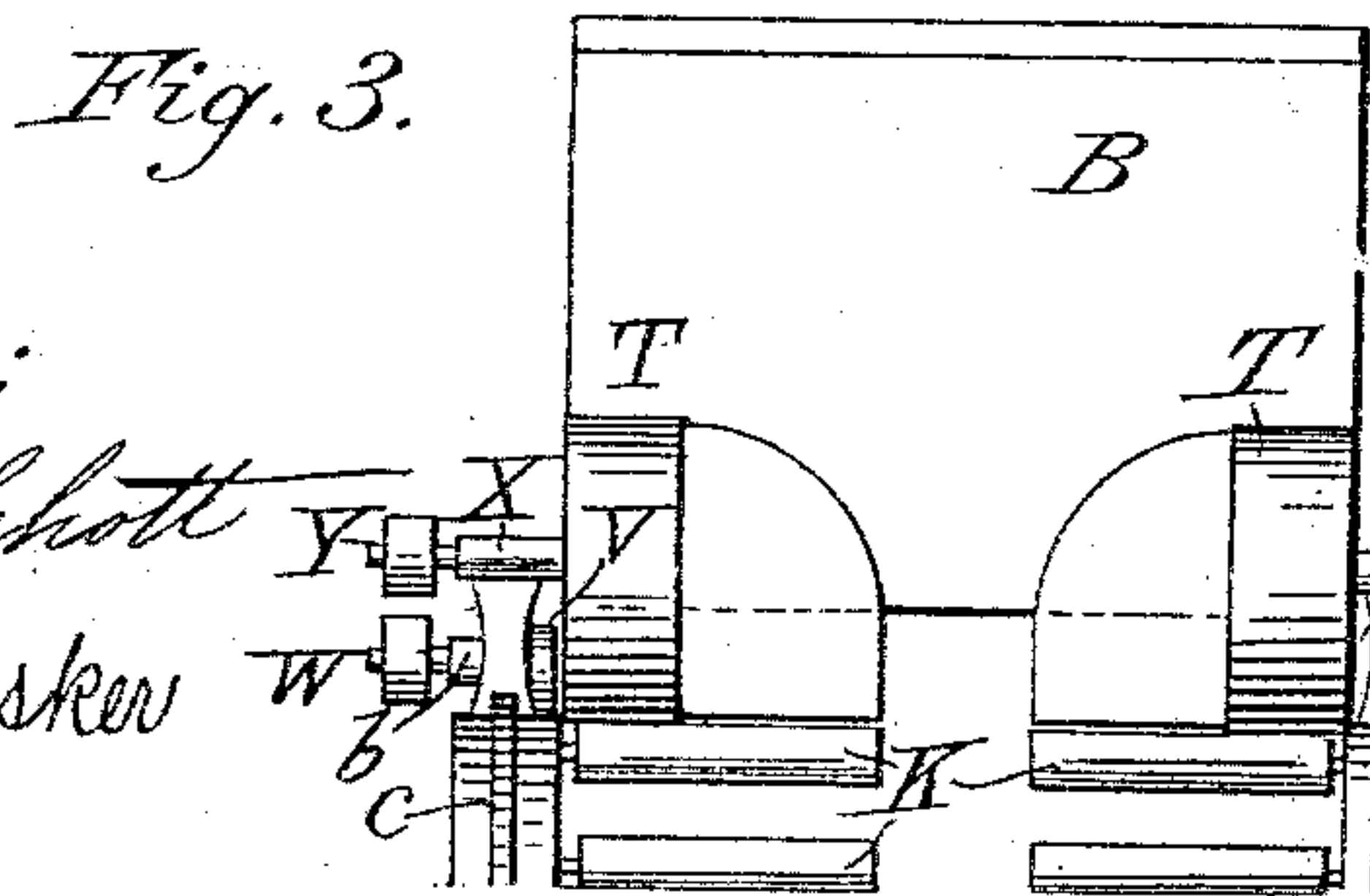
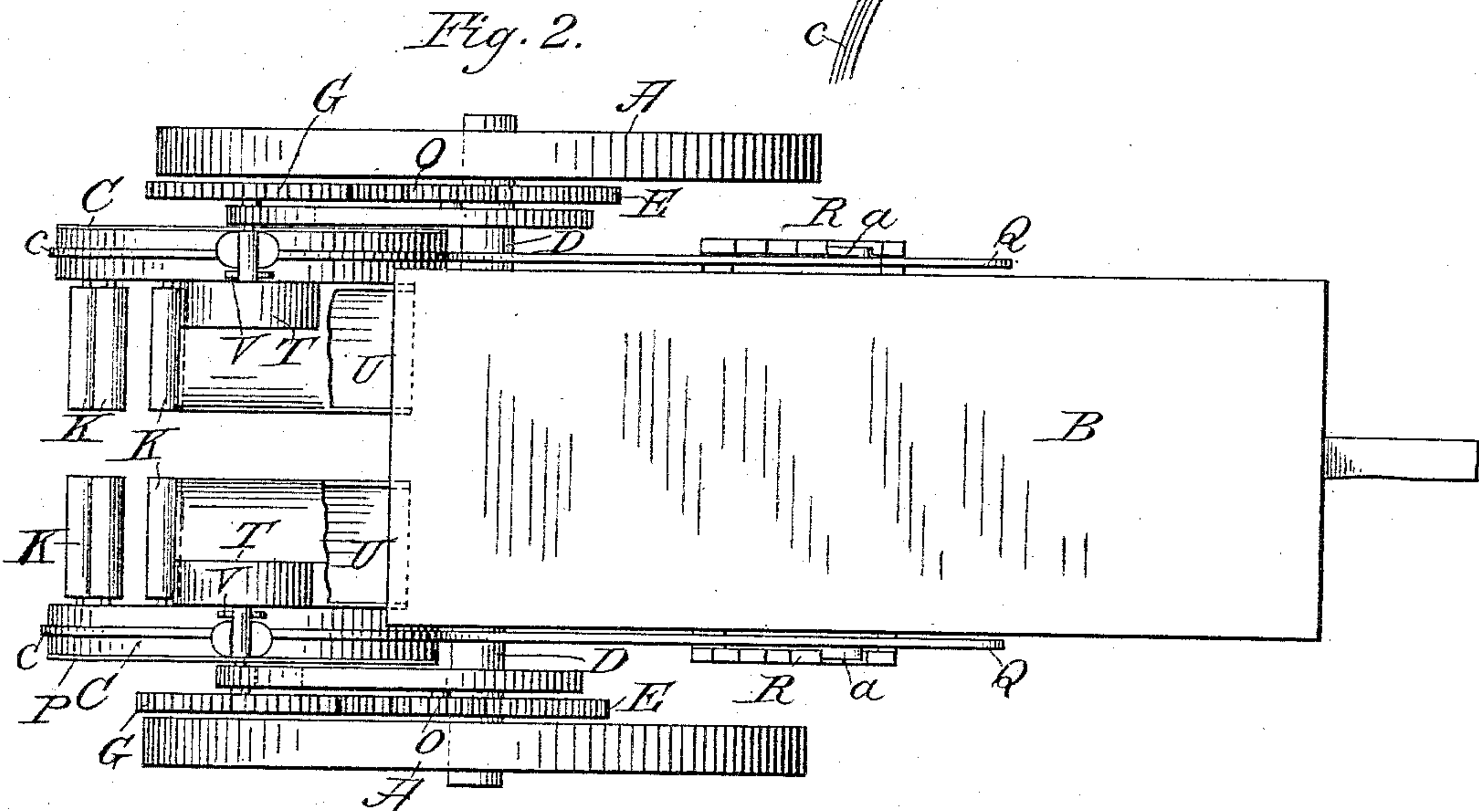
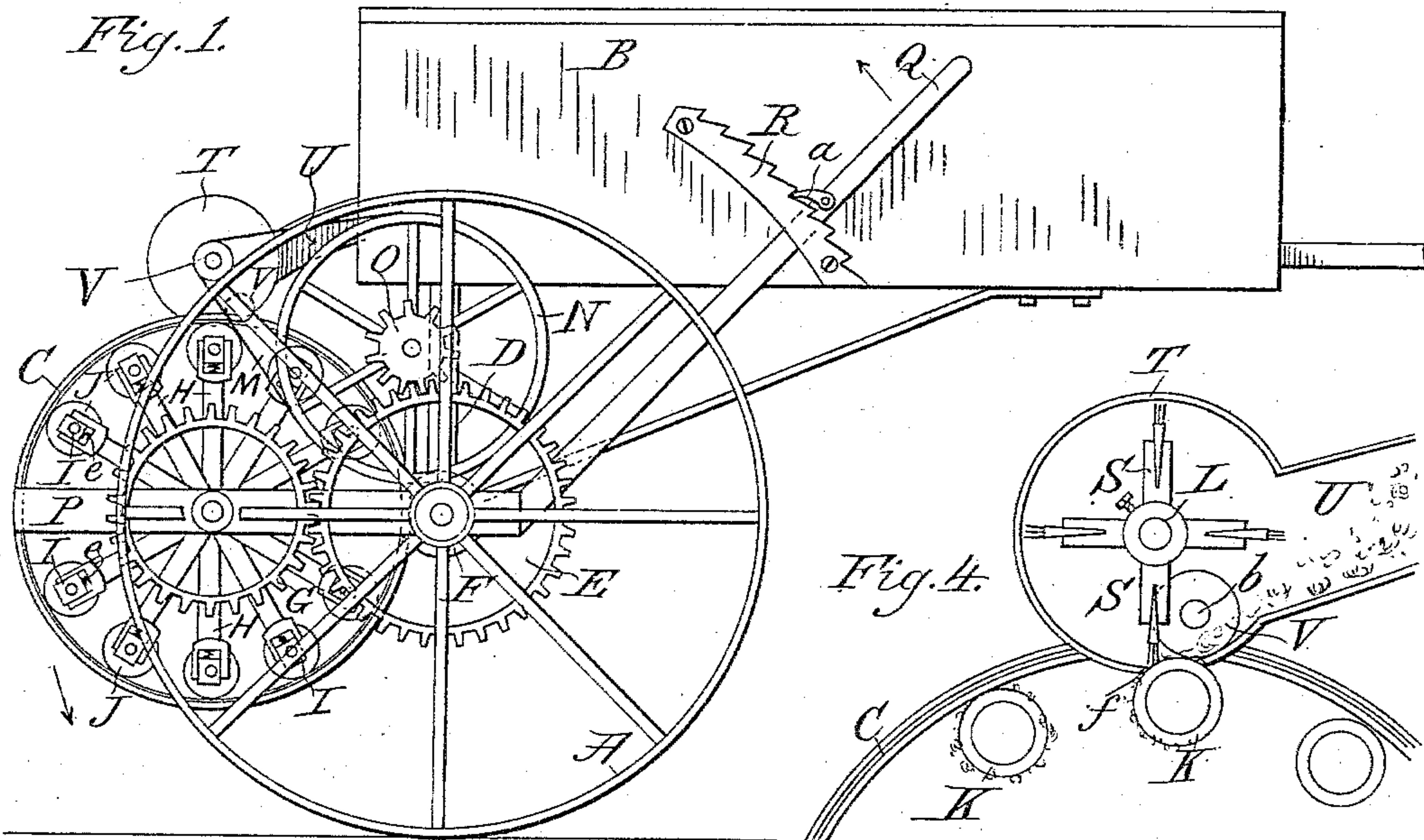


(No Model.)

W. G. SEARS.
COTTON HARVESTER.

No. 339,482.

Patented Apr. 6, 1886.



Attest:

H. H. Schott
Fred E. Tasker

Inventor:

William G. Sears.
C. E. Tasker,
att'y.

UNITED STATES PATENT OFFICE.

WILLIAM GOFF SEARS, OF CHATTANOOGA, TENNESSEE, ASSIGNOR OF ONE-HALF TO HIRAM SANBORN CHAMBERLAIN, OF SAME PLACE.

COTTON-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 339,482, dated April 6, 1886.

Application filed March 31, 1885. Serial No. 160,839. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GOFF SEARS, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Cotton-Harvesters; 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in cotton-harvesters for gathering cotton from the plants; and it consists of a construction and arrangement of parts hereinafter described.

In the annexed drawings, illustrating the invention, Figure 1 is a side elevation of the cotton-harvester. Fig. 2 is a plan view of the same. Fig. 3 is a rear elevation of a portion of the machine, and Fig. 4 is a sectional detail view of the brush and fan attachment.

Like letters of reference designate like parts in the several views.

A A are the wheels.

D is a bent axle, and B the body, of a carriage-frame which supports and carries the mechanism of the harvester.

C C are cylindrical casings, of any desired width, whose circumferences are provided with medial flanges, *c*, and to the outside of each of which is secured a horizontal bar, P. These bars P support shafts carrying the gear-wheels G G and the radial arms H H H. The casings C are provided with pivotal projections F, cast therewith, which are bored to exactly fit the axle, and by means of which the casings are attached to the axle. The ends of these projections are socketed or otherwise suitably formed to receive lever-arms Q, provided with pawls *a*, which engage with ratchet-bars R upon the box B of the carriage. The upward or downward movement of the levers Q will correspondingly lower or raise the picking mechanism with the casings C, since projections F are fulcrumed on the axle in the manner described. Thus the entire picking mechanism can be adjusted at any desired distance from the ground and from the cotton-

plants upon which it is to act, and can also be raised up out of the way of obstacles when the machine is not in operation. By this arrangement the rapid forward motion of the picking-stems is allowed to pass underneath the lowermost branches of the cotton-plant, in order to prevent the continuous crowding forward of the cotton-plant, leaving the same in its natural position while the machine is passing and after it has passed over the cotton-plant.

To the hubs of the drive-wheels A A, and concentric therewith, are firmly attached gear-wheels E E, so that when the drive-wheels move forward the gears also revolve. These gears mesh with other gear-wheels, G G, and also with pinions O O. Gear-wheels G G are attached rigidly to the ends of shafts passing through bars P. Pinions O O are secured to the hubs of wheels N N, journaled in suitable bearings upon the casings C, which wheels carry bands or chain-belts M, for driving the combined brush and exhaust fans L. The same shafts which carry the gears G G carry also radiating arms H on the opposite side of the bar P. These radiating arms are fastened directly into a hub mounted rigidly on said shaft for their reception. Each of these arms has at its outer extremity a bearing, I, into which is journaled a friction-wheel, J, which in its revolutions rolls upon the interior surface of the casing C. The spindle of each friction wheel or roller carries a friction-stem, K, and the stem which I preferably use is that described and claimed in my former application for Letters Patent, dated February 27, 1885, Serial No. 157,213.

The bearings I I may be provided with springs *e*, to give the friction wheels and stems greater ease of motion and to keep the wheels always pressed against the casing, lest through lack of such pressure any of the stems should cease to revolve.

The brush-fan L S is situated within a casing or blast inclosure, T, which is secured upon the upper portion of the casing C in any convenient manner. This fan L S is composed of blades S, constructed of a couple of pieces of sheet metal, between which the brush is placed and fastened to a shaft which is journaled in a bearing, X, which is attached to casing C, and which carries at its extremity the driving-

pulley Y, to which motion is imparted by the belt M. There is also journaled in a support attached to the casing C a shaft, *b*, which carries at one end a driving-pulley, W, and at the other a friction-pulley, V. The pulley W is situated directly in line with pulley Y, so as to work under the action of the belt M. Pulley V works through a slot in the casing C, provided for the purpose and bears directly upon the friction-wheels J as each one is successively brought into contact with it.

The casing T has an opening, *f*, in its lower portion, so that each picker-stem K in its revolution is brought under the direct action of the brushes. This frees them from the cotton, which is then driven up through the blast-passage U into the box B, which serves as a receptacle to receive it, and when each stem K is brought under the action of the brush-arms S S the friction-pulley V bears upon the friction-wheels J, and revolves the stem K in an opposite or reverse direction, thus enabling the entire surface of the stem to be brought under the action of the brushes, and to be entirely freed of whatever cotton, &c., it may have gathered.

It will be seen that this machine has duplicate mechanism, one portion on each side, although these two sides are entirely independent in all ways. It has therefore two sets of picking-stems, one upon each side of the row of cotton-plants. This is a great advantage, as it allows the free passage of the main stalks of the plants between the projecting ends of the picking-stems, so that the plant will not be injured by the machine, or the machine be clogged or broken by the stalks and branches of the plant. As the carriage, drawn by animal-power, moves forward through the field motion is imparted by the drive-wheels A A to the gears E E thereupon, thence to gears G and pinions O. The gears G, driving the shafts to which are fastened the radial arms H, cause them to rotate. The friction-wheels J and the picking-stems K, which they carry, are thus made to revolve. The picker-stems thus have two motions imparted to them, rotating about a common axis as well as about their individual axes.

The pinion O drives the wheel N, which, through the band M, conveys motion to the combined brush and fan L, whose function is to cleanse and free the stems from cotton gathered in transit. This is done as the stems are successively brought under the action of the fan in the manner above described.

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

1. In a cotton-picker, the combination of a cylindrical casing, C, radial arms H H, mounted on a shaft journaled within said casing, and the picker-stems K and friction-wheels J, mounted on horizontal spindles journaled in the ends of said radial arms, said friction-wheels being in contact with the inner circum-

ference of the cylindrical casing, whereby the rotation of the radial arms produces in the picker-stems a rotation of each on its own axis and of all around their common axis, substantially as described.

2. A cotton-harvester consisting, essentially, of cylindrical casings, rotary central shafts, radial arms mounted on said shafts, and rotating picker-stems carried on the extremities of said arms and within the casings, a combined brush and exhaust fan, the drive-wheels, and means for operating the said parts, all combined, arranged, and operating substantially as and for the purpose set forth.

3. The combination of the driving-wheels, having the gears E E, the bars P P, the shafts journaled in said bars and having gears G G, radial arms H H, provided with the bearings I I, picker-stems K K, journaled in said bearings and carrying friction-wheels J J, and the casings C C, substantially as and for the purpose set forth.

4. The combination of the rotary shafts, the radial arms mounted thereon, the picker-stems K, carried by said arms and having friction-wheels J, casing C, surrounding said friction-wheels, the casing T, the shaft *b*, provided with the pulley W, and friction-wheel V, the fan-shaft having the pulley Y, the band-wheel N, belt M, the fans and brushes L S, the drive-wheels, and the intermediate gearing for driving the whole, substantially as and for the purpose shown and described.

5. The combination, with the casings C C and the picker-stems K, of the fan-casings T, provided with the longitudinal openings *f*, and also with the draft-passages U, the friction-wheels V, the fans and brushes L S, and the receptacle B, substantially as and for the purpose set forth.

6. The combination of the revolving horizontal shaft, the radial arms mounted thereon, the bearings I, carried in the extremities of the said arms, the springs *e*, the revolving picker-stems K, journaled in said bearings and provided with the friction-wheels J, the surrounding casing C, upon which said friction-wheels roll, and means for rotating said shaft, whereby said picker-stems are caused to revolve about a common horizontal axis and at the same time about their own axes, substantially as described.

7. In a cotton-harvester, the combination, with the picking mechanism described and shown, of pawls and ratchets and levers Q, by which the said mechanism is adjusted and held at any desired height above the plants during the picking operation, substantially as described.

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

WILLIAM GOFF SEARS.

Witnesses:

DANIEL J. DUFFY,
LEONARD BOYCE.