

(No Model.)

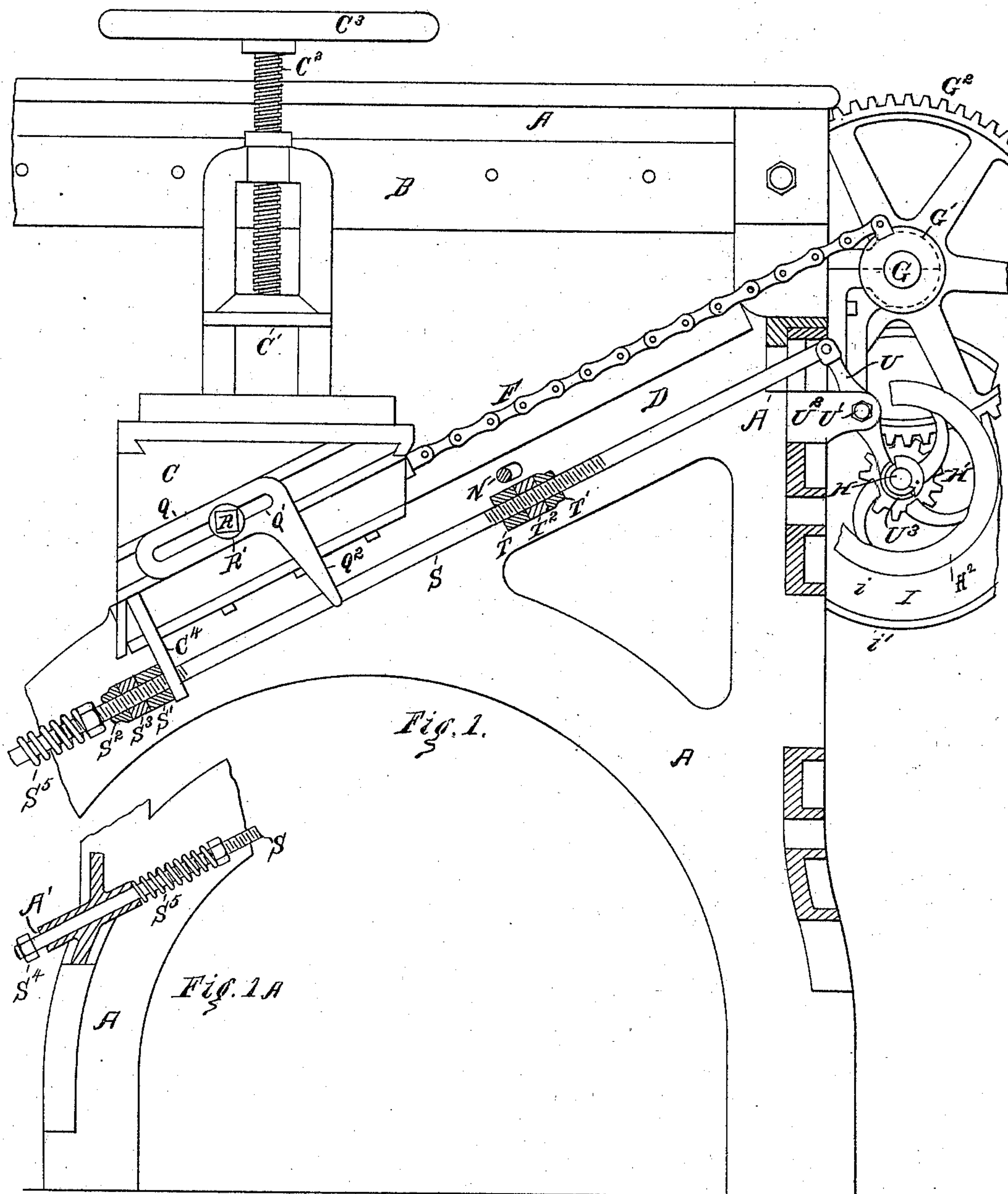
3 Sheets—Sheet 1.

G. L. CADY.

MACHINE FOR TRIMMING BOOKS AND PAPERS.

No. 301,335.

Patented July 1, 1884.



Witnesses _____

Kirkley H. C.

Edward W. Thompson.

Inventor-

George L. Gady,
By Albert M. Moore,
His Attorney.

(No Model.)

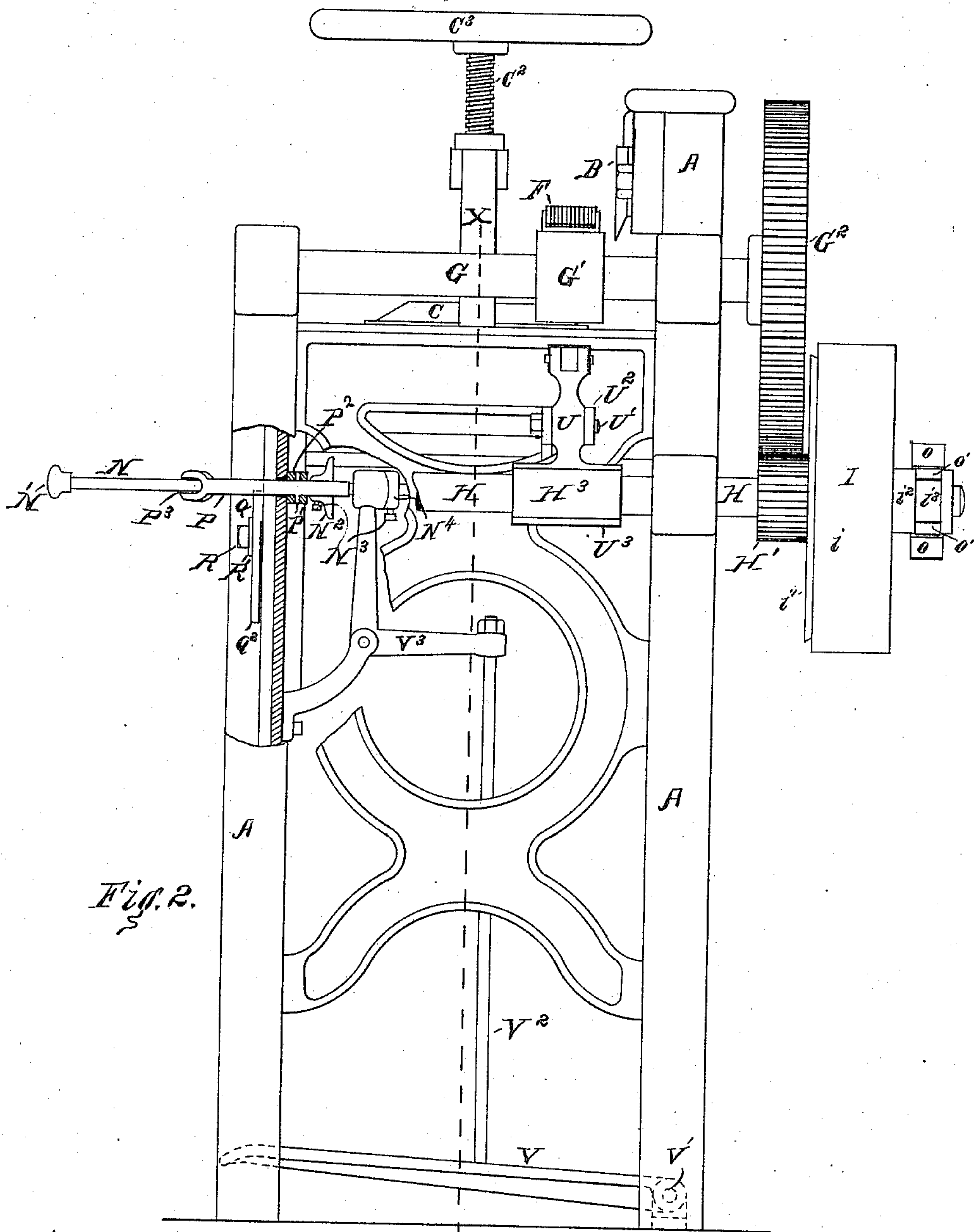
3 Sheets—Sheet 2.

G. L. CADY.

MACHINE FOR TRIMMING BOOKS AND PAPERS.

No. 301,335.

Patented July 1, 1884.



Witnesses—

Kirkley Hyde.
Edward W. Chapman.

Inventor—

George L. Cady,
By Albert M. Moore,
His Attorney.

(No Model.)

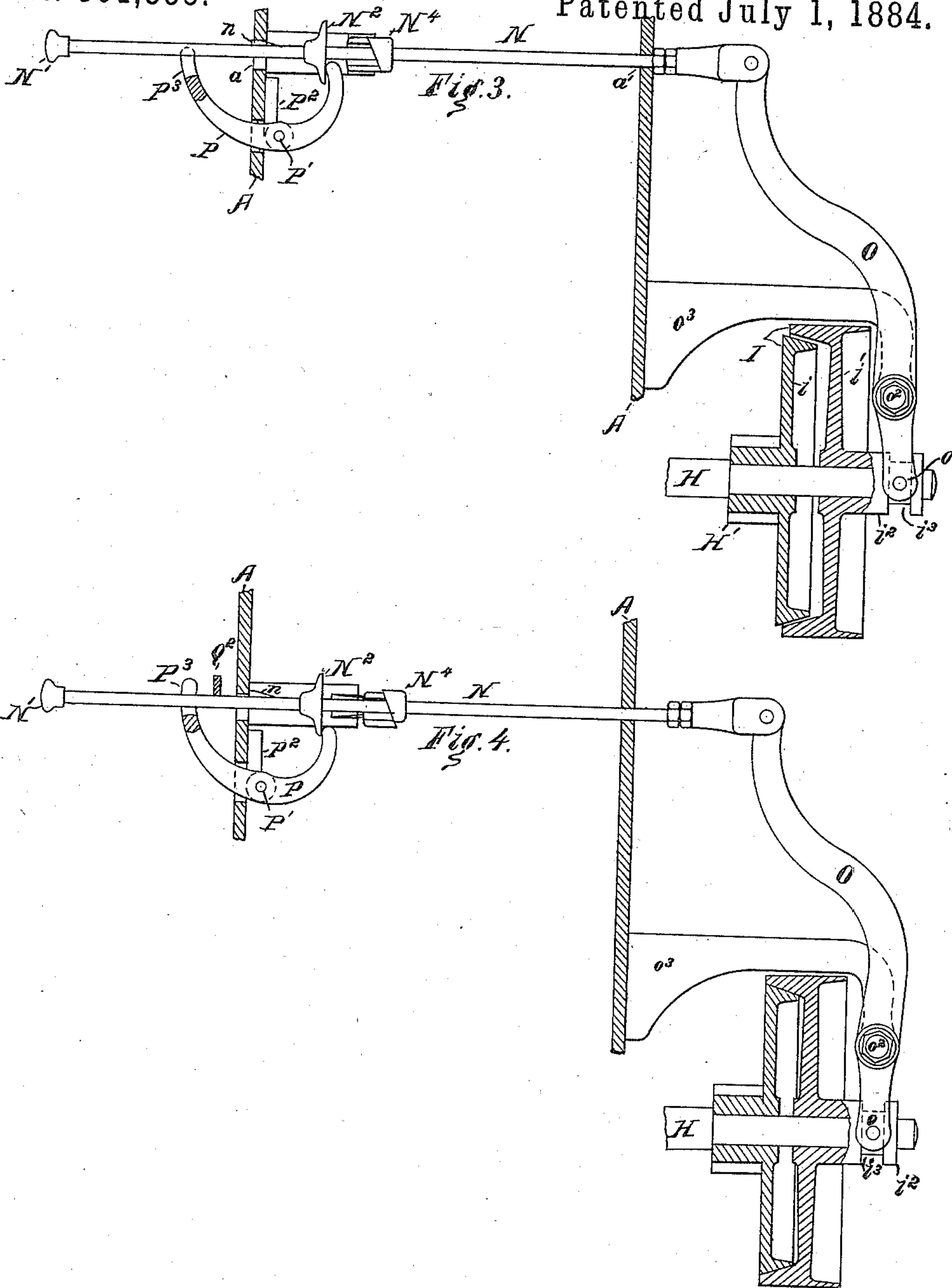
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His Attorney.

UNITED STATES PATENT OFFICE.

GEORGE L. CADY, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO MARY H. SEMPLE, OF SAME PLACE.

MACHINE FOR TRIMMING BOOKS AND PAPERS.

SPECIFICATION forming part of Letters Patent No. 301,335, dated July 1, 1884.

Application filed September 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. CADY, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Trimming Books and Papers, of which the following is a specification.

My invention relates, in general terms, to means for automatically uncoupling the friction-clutch by the motion of the carriage, and to means for automatically applying a brake to the winding mechanism of the machine by the descent of the carriage, as and for the purposes hereinafter described.

In the accompanying drawings on three sheets, Figure 1 is a vertical section through the frame and through the buffers and check-nuts of the brake-rod on the line X X in Fig. 2. Fig. 1^A is a smaller view of the lower part of the frame or leg, one leg of the machine being broken away in Fig. 1 and shown on a smaller scale in Fig. 1^A. Fig. 2 is an end view of the machine. Figs. 3 and 4 are top views of the shipping mechanism, Fig. 3 showing its position when the machine is at rest, and Fig. 4 showing its position when the machine is in operation.

The frame A, vertical knife B, with horizontal lower edge, book table or carriage C, sliding on inclined ways D, secured to the frame A, said carriage being provided with a screw-clamp, C', clamp-screw C², and hand-wheel C³, are all substantially as shown in Patent No. 19,654, granted to A. C. Semple, March 16, 1858, for machines for trimming books, and are well understood. It is only necessary to say in regard to the above-named parts that books are held by the clamp on the table, and are cut and trimmed by causing the carriage to slide up on the incline until the edges of the books are cut by crowding them against the edge of the stationary knife. The carriage is commonly drawn up the incline by a chain, F, (instead of by a screw, as shown in said patent,) one end of which chain is attached to the shorter side of the carriage, and the other end of which chain F is attached to a drum, G', which is fast on the counter-shaft G. On the counter-shaft G is fast the gear G², which takes into the pinion H', which

is fast on the main shaft H. The main shaft H is driven by a cone-clutch, I, the inner cone or fast pulley, *i*, being secured to the shaft, and the outer cone or loose pulley, *i'*, is provided with an annular groove, *i''*, into which extend rolls *o' o'*, supported at right angles to the hub *i''* on the arms *o o* of a forked lever, O, the lever O, being supported horizontally and turning on a vertical pivot, *o''*, in the bracket *o''*.

To the end of the long arm of the lever O, is pivoted a rod, N, which slides horizontally in holes *a a'* in the frame A, so that by pushing said rod to the right in Fig. 2 (by applying the hand to the knob N' at the end of said rod N) the cones are engaged with each other, and thereby the main shaft is revolved and (through the gear and pinion) the counter-shaft is also revolved, winding up the chain on the drum and carrying the carriage up the incline D.

For the purpose of adjusting the books or paper to the knife, the carriage may be drawn up by turning the hand-wheel H², secured to the main shaft. The hole *a* in the frame nearest the knob is larger than the rod N, and the rod N is provided with a projection, *n*, so that if the rod is pushed in far enough and then swung to one side the projection *n* will rest against the inside of the side of the frame A, as in Fig. 4, and prevent the uncoupling of the clutch, rendering it unnecessary to hold the rod in position while the book or paper is being cut. By pushing the rod to one side the projection is released, and, drawing the rod out, the clutch is uncoupled.

Heretofore a spring between the parts of the clutch has been used to throw them apart when the projection *n* was released from the side of the frame. (The treadle V, pivoted at V' to the frame A, the connecting-rod V², bell-crank lever V³, beveled collar N⁴ on the rod N, with other parts above described, are used by the operative to couple and secure the clutch when his hands are full, pressure on the treadle producing the same effect as pushing the knob N' to engage the cones and revolve the shaft.) The above-described parts are well known; but I provide the rod N with a collar, N², adjustable on said rod by means of a set-screw, N³, which, turning in the hub of said collar, thrusts against said rod, and I

pivot at P' to a bracket, P², secured to the inside of the frame A, a crescent-shaped lever, P, provided at its outer end with a fork, P³, which straddles said rod N, the other end of said lever P reaching behind said collar N². Now, the collar N² is so adjusted on the shaft that when the rod N is pushed to one side to uncouple the clutch, as soon as the projection n is thereby disengaged from the frame, (and not until then,) said rod strikes the outer end of the lever P between its forks, and causes the other end of the lever P to strike the collar N² and throw outward—that is, to the left in Figs. 2, 3, and 4—said rod, and thereby make sure of the uncoupling of the clutch. This uncoupling of the clutch is made automatic by a finger-plate, Q, provided with a slot, Q', and a finger, Q², which is secured to the carriage by a washer, R', and bolt R, the latter passing through the slot Q' into the carriage. By loosening the bolt R in the slot Q the finger Q² may be so adjusted as to strike the rod N and push it to one side, with the result of uncoupling the clutch just as soon as the books or paper on the carriage are cut through by the knife, whereupon the carriage will slide down the incline by its own weight, unwinding the chain F from the drum G.

In order that the carriage may be checked at the bottom of the incline without injury to the carriage, the carriage is usually provided with an arm, C⁴, which is slotted to allow the rod S to pass freely through it. This rod S usually is secured rigidly at its lower end to the frame, and is provided below the arm C⁴ with an elastic buffer, S', which may be adjusted by a nut, S², and check-nut S³, the rod being screw-threaded for that purpose. The rod S is also usually provided with another buffer, T, and with a nut, T', and check-nut T², said rod being threaded for that purpose, as shown. The upper buffer is intended to check the momentum of the carriage, and therefore of the gears and shafts, as the knife completes the cut, and the load is thereby taken from the machine. The operative usually finds it necessary, however, in stopping the machine to apply his hand to the hand-wheel to check the momentum of the machine. The rod S usually ends just above the upper buffer and nuts. I pass the lower end of the rod S through a hole, A', in the frame A, said hole being large enough to allow said rod to slide therein, and I put a spiral spring, S⁵, around said rod between the check-nut and the frame A. The outer end of the rod S' is provided with a nut, S⁴, which prevents said rod being drawn out of the hole A'; and I extend the upper end and pivot said upper end to a brake-lever, U, which is piv-

oted at U' to a bracket, U², secured to the frame of the machine. The lower end of the brake-lever has a semi-cylindrical hollow, U³, which fits the main shaft H, or an enlargement, H³, thereof. When the carriage reaches the bottom of the incline D and strikes the lower buffer, the rod S is drawn down, compressing the spring S⁵ and drawing the hollow or brake U³ against the enlargement H³, and checks the motion of the main shaft and counter-shaft, they being geared together as above described; otherwise their momentum and that of the gear and pinion, caused by the descent of the carriage and the unwinding of the chain, (unless the momentum were checked by applying the hand to the hand-wheel H², as above described,) would wind the chain up in the other direction, and either break the chain or raise the carriage with a sudden jerk and injure the machine. When the power is again applied and the carriage starts, the brake is released by the expansion of the spring S⁵.

It will be seen that the above-described uncoupling mechanism is positive as well as automatic in its operation, and cannot fail to uncouple the clutch when the carriage reaches the upper end of the course.

I claim as my invention—

1. The combination of the clutch, the carriage, the finger secured thereto, the coupling-rod provided with a collar, the crescent-shaped lever, and means, substantially as described, of connecting said coupling-rod to the movable part of said clutch, as and for the purpose specified.

2. The combination of the carriage, the incline, the brake-lever provided with a brake, winding mechanism, and means, substantially as described, whereby the brake is automatically applied to stop the winding mechanism by the descent of said carriage, as and for the purpose specified.

3. The combination of the brake-rod provided with the lower buffer, the brake-lever, the main shaft and winding mechanism, and the carriage provided with an arm having a hole to receive the brake-rod, as and for the purpose specified.

4. The combination of the brake-rod provided with the lower buffer, the brake-lever, the main shaft and winding mechanism, the carriage provided with an arm having a hole to receive the brake-rod, and spiral spring surrounding the brake-rod, as and for the purpose specified.

GEORGE L. CADY.

Witnesses:

ALBERT M. MOORE,
JOHN W. ARLEN.