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PATENTED OCT. 10, 1905.

O. M. LISSAK.

MACHINE FOR CUTTING PAPER TUBES INTO LENGTHS.

APPLICATION FILED SEPT. 20, 1904.

2 SHEETS—SHEET 1.

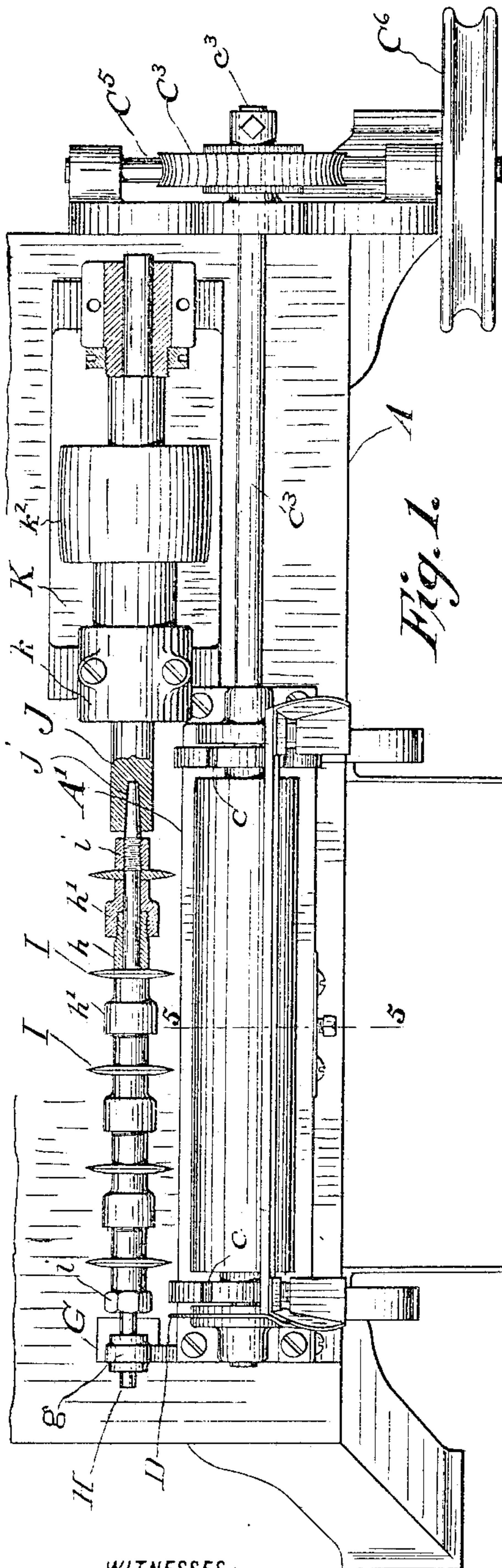


Fig. 1.

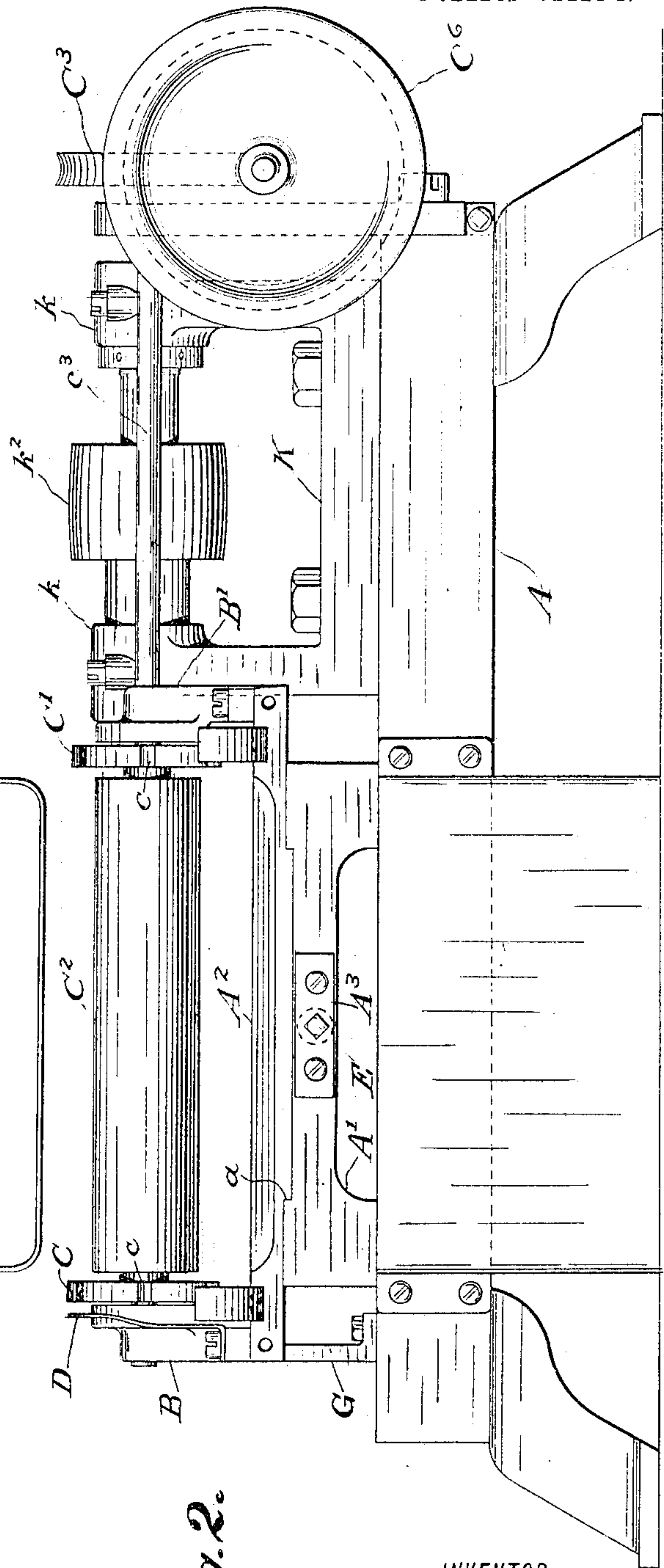


Fig. 2.

WITNESSES:

M. M. Hamilton

Albert M. Garry

INVENTOR

Oscar M. Lissak

BY

Handley & Handley
ATTORNEYS

No. 801,729.

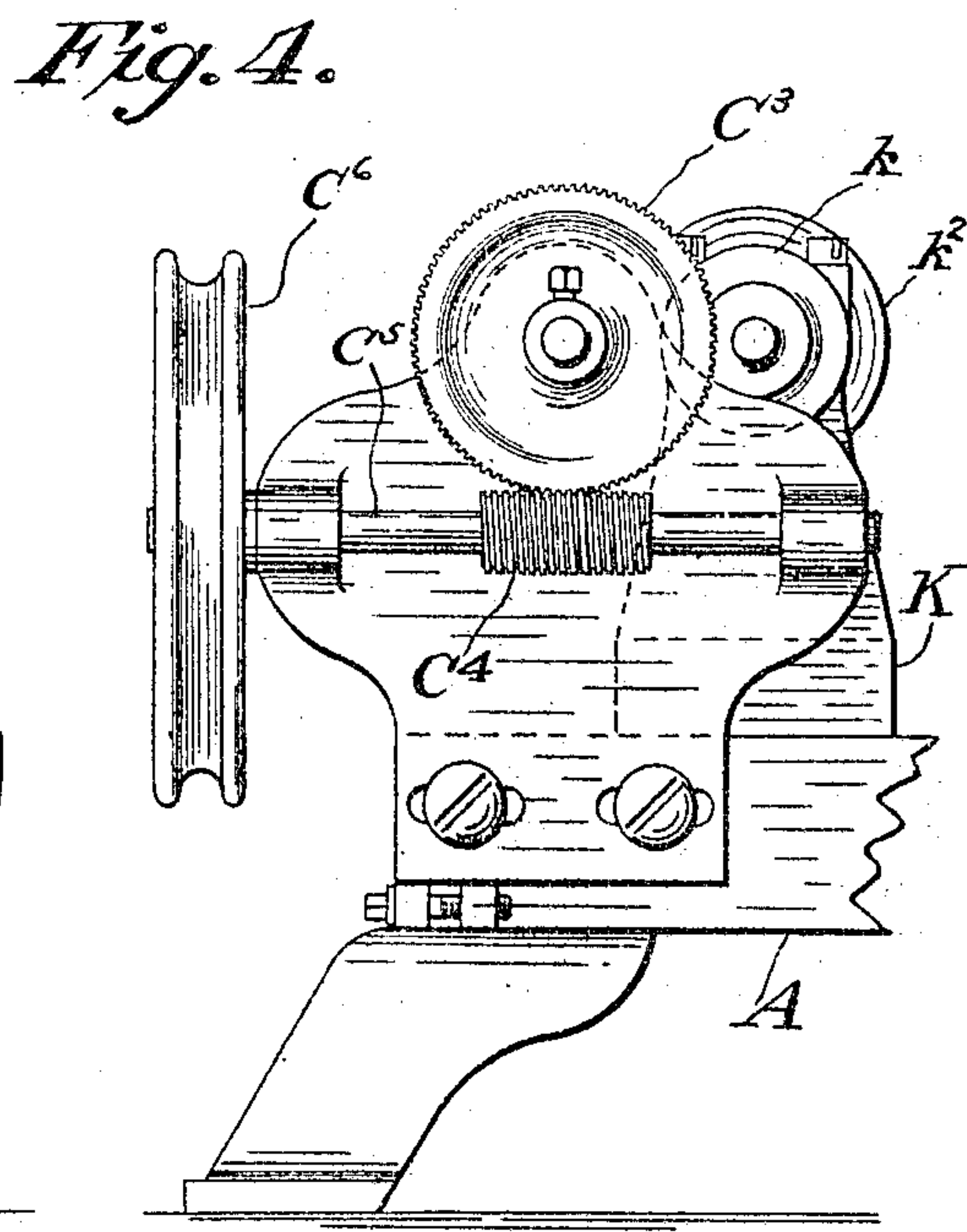
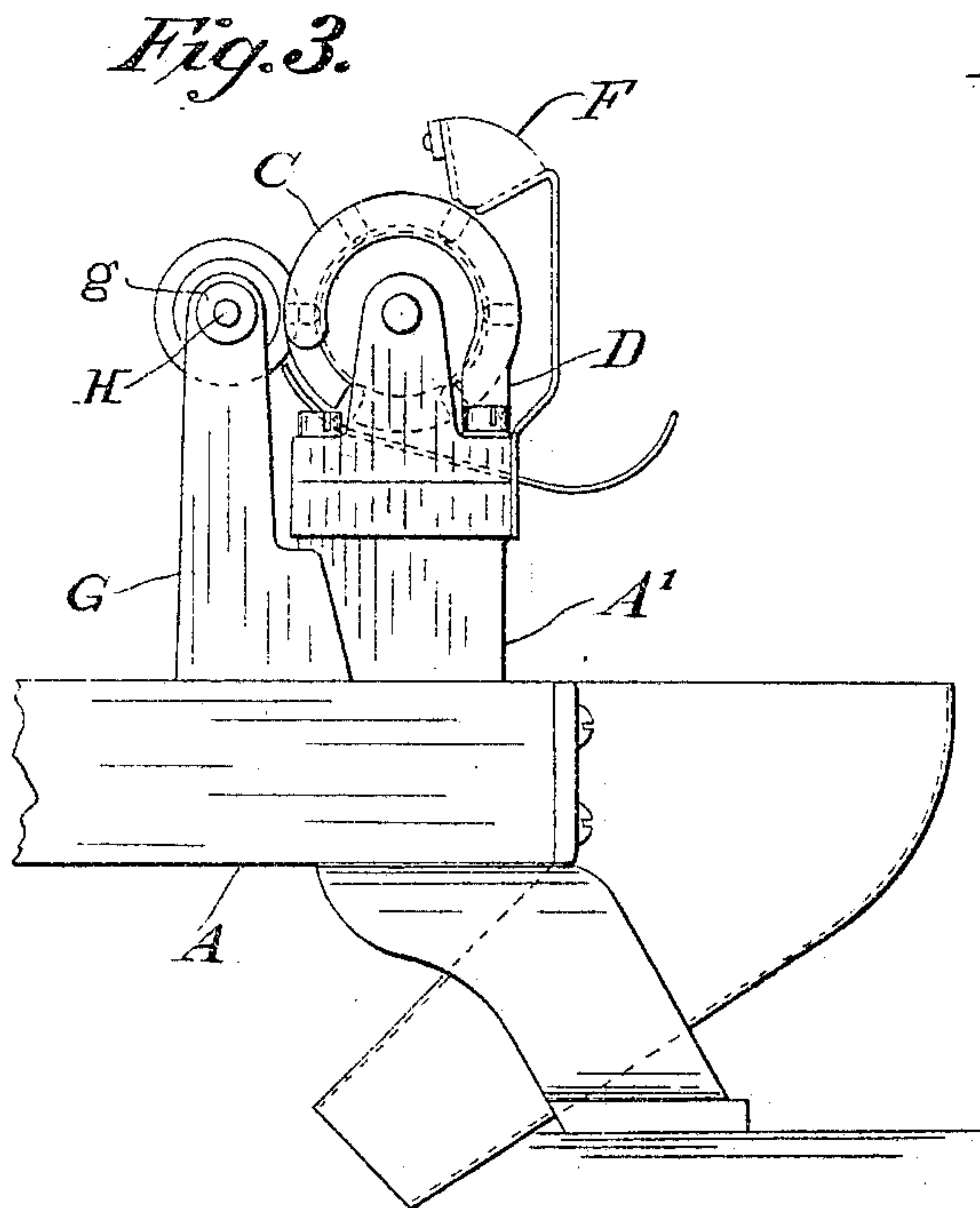
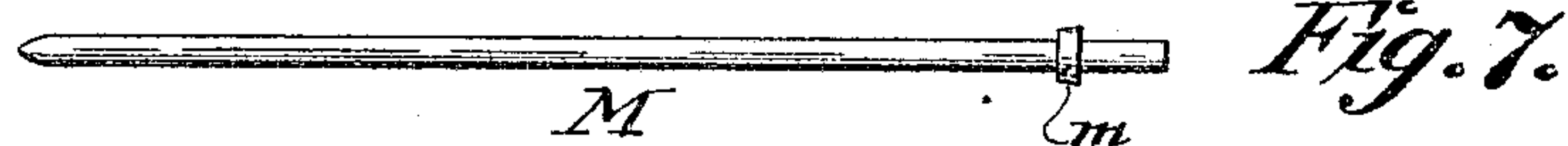
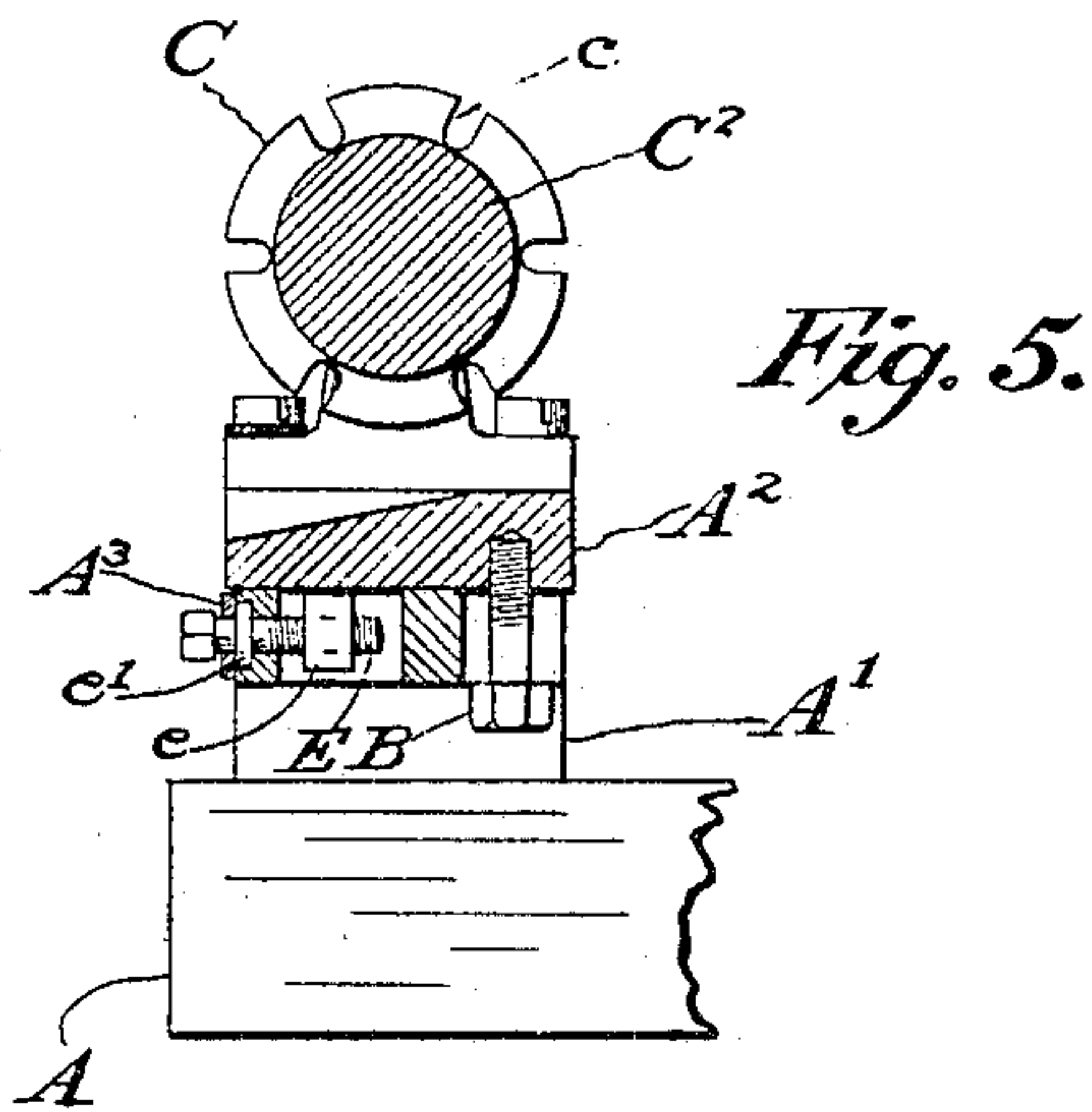
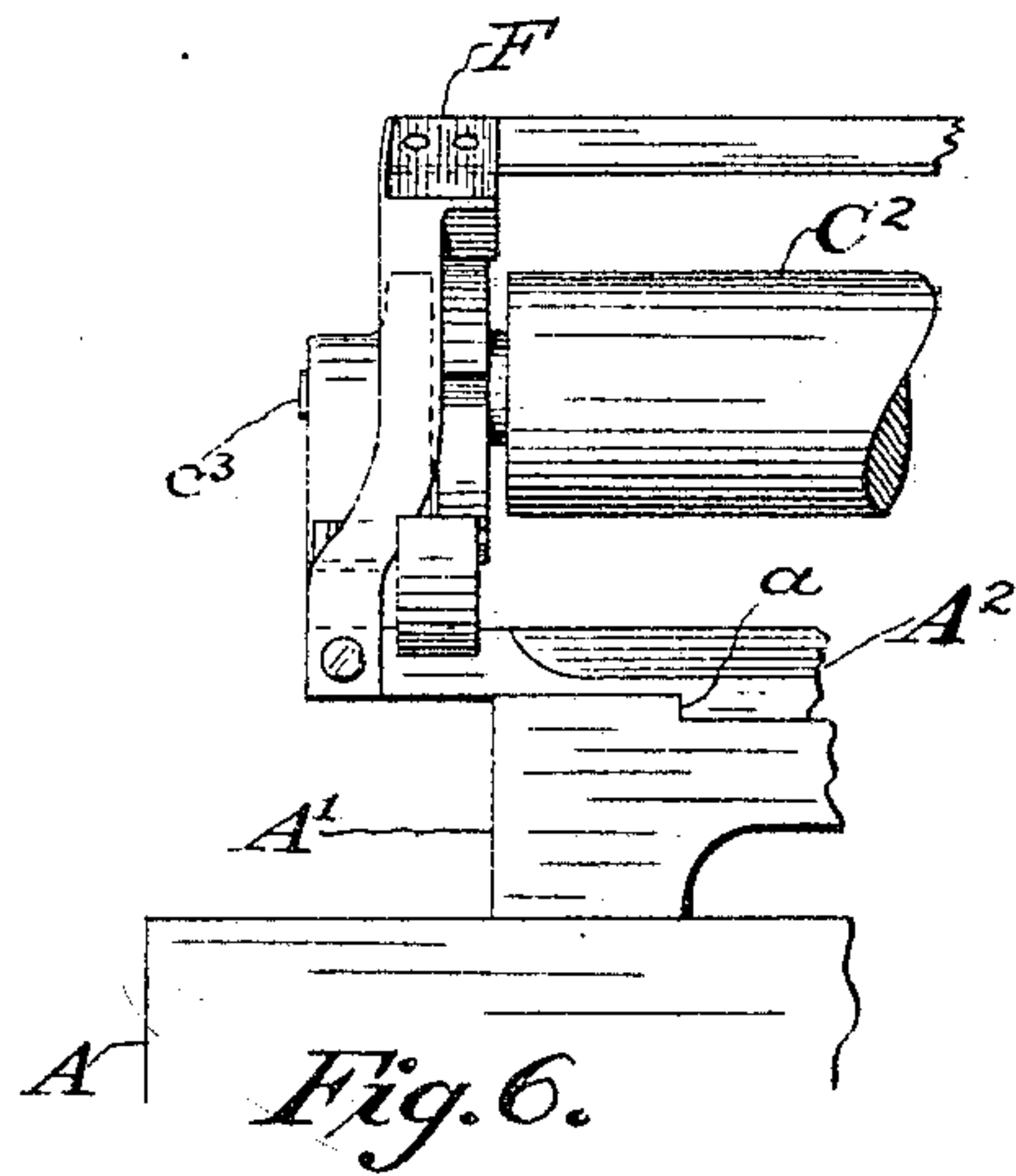
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2 SHEETS—SHEET 2.



WITNESSES:

M. M. Hamilton

Albert H. Ewing

INVENTOR

O. M. Lissak

BY

Nathan S. Lissak
ATTORNEY

UNITED STATES PATENT OFFICE.

ORMOND M. LISSAK, OF WESTPOINT, NEW YORK.

MACHINE FOR CUTTING PAPER TUBES INTO LENGTHS.

No. 801,729.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed September 20, 1904. Serial No. 225,220.

To all whom it may concern:

Be it known that I, ORMOND M. LISSAK, a citizen of the United States, residing at Westpoint, county of Orange, and State of New York, have invented a new and useful Improvement in Machines for Cutting Paper Tubes into Lengths, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

I will first describe the embodiment of my invention as illustrated in the accompanying drawings and then point out the invention in the claims.

In the drawings, Figure 1 is a plan view, partly in section. Fig. 2 is a front elevation. Fig. 3 is an end elevation. Fig. 4 is an end elevation opposite to Fig. 3. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is a partial elevation. Fig. 7 is a detail view.

A is the base of the machine, having at one portion thereof secured thereto the bed-plate A', having a groove *a*, in which a slide A² rests and is capable of movement therein. Secured to this slide are the brackets B B', forming bearings for the shaft of the disks C C', having the peripheral equispaced notches *c*. Supported between the disks C and C' on the shaft *c*³ is the backing-roller C², free to revolve upon shaft independently of the disks C C'. The shaft *c*³ of disk C' has at its outer end the worm-wheel C³, working in the worm C⁴ on the shaft C⁵, operated by the pulley C⁶, driven by a belt (not shown) from a source of power. (Not shown.)

D is a spring which surrounds the bearing for the disk C and is in line with the notches *c* in said disk C.

The movement of the frame A' and its retention in the desired fixed position is obtained in the following manner: E is a screw or threaded rod, one end of which enters the plate A' of the machine. The threaded portion of the rod or screw passes through a threaded depending portion *e* from the slide A². The outer end of the screw or rod, which is not threaded, passes through an orifice in the plate A³, secured to the plate A', a collar *e'* on the screw E lying between the plates A' and A³, and thereby rotatably held. By turning this screw or rod the forward or backward position of the slide A² and its appurtenant backing-roller C² may be adjusted. It may be clamped in position by means of the clamping-bolt B. The bracket supporting the worm-wheel end of backing of roller-shaft C³

is fixed to bed A by screws passing through slots in bracket, whereby that end may be moved to the adjustment of opposite end and clamped by clamping-nuts.

G is a bracket secured to the frame A and carrying a bearing *g* for the cutter-mandrel H. Mounted upon this cutter-mandrel H are a series of cutter-sleeves. These cutter-sleeves are of two varieties, *h* and *h'*. The variety *h* is of cylindrical shape, having a slightly-reduced end externally threaded. The variety *h'* is also of cylindrical shape, having an enlarged portion at one end internally threaded. The mandrel at each end is threaded. The sleeves *h* and *h'* are alternately placed upon the mandrel with the male screw of one cutter-sleeve entering the female screw of the other cutter-sleeve. Between pairs of cutter-sleeves is placed a circular cutter I, resting on one side against the contracted end of a sleeve *h'* and on the other side against the end of a sleeve *h*. The end cutters are backed up by nuts *i*, working on the threaded ends of the mandrel H. By turning the sleeves *h* and *h'* relatively to each other the position of the cutters I upon the mandrel may be adjusted.

J is a shaft having the orifice *j* at its end, in which one end of the mandrel H is secured so that in the rotation of the shaft the mandrel is rotated. This shaft J is supported in bearings *k* of the bracket K, secured to the bed A of the machine, and is driven by a pulley *k*², operated by a belt (not shown) from a source of power. (Not shown.)

M is a mandrel adapted to be surrounded by the paper tube previously formed and which is to be cut into lengths. Near one end of this mandrel M is the collar *m*. In practice mandrels, with their surrounding tubes, are placed in the hopper F, and as each pair of notches *c* passes under the opening of the hopper a mandrel drops into said notches by gravity, the collar *m* of each mandrel resting against the inner surface of disk C' and the opposite end of each mandrel M resting against the spring D, so that the spring D holds the collar *m* against the disk C' and a constant and fixed position of the mandrel is obtained, the cutters being placed upon the mandrel H at the desired space apart, as before described. The slide A² is moved to bring the mandrels M and backing-rollers into the desired relation, with the cutters I and the slide A² locked in that position. Power is then applied to the machine, which causes the shaft carrying

the disks C C' to revolve, carrying the mandrels one by one against the cutters I. The pressure of the cutters against the paper tube on the mandrels while the tube is in contact with the cutters produces revolution of the mandrel and tube and the backing-roller and cuts the tube into lengths. By this arrangement I can cut a plurality of paper tubes into lengths, I can adjust the lengths of the sections, and I can also adjust the extent of the cuts.

In practice I have used my machine for cutting paper tubes into lengths to form bullets for blank cartridges, although I do not intend to limit my invention to that use nor to any particular use.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In combination, a mandrel, a support for said mandrel on which said mandrel is revolvably mounted and a backing-roller against which said mandrel is adapted to rest.

2. In combination, a plurality of mandrels, a support for said mandrels on which said mandrels are revolvably mounted, and a backing-roller against which said mandrels are adapted to rest.

3. In a machine of the character described, in combination, disks, each having a notch in its periphery, a backing-roller supported between said disks, a mandrel resting in the notches in said disks adjacent to the backing-roller, and means to revolve said disks.

4. In a machine of the character described, in combination, disks, each having notches in their periphery, a backing-roller between said disks, a plurality of mandrels resting in said notches around the periphery of said disks adjacent to said backing-roller, and means to revolve said disks.

5. In a machine of the character described, in combination, disks, each having a notch in its periphery, a backing-roller supported between said disks, a mandrel adapted to rest in said notches having a collar adapted to rest against the face of one disk and a spring acting against said mandrel to hold said collar against the said disk, and means to revolve the notched disks.

6. In a machine of the character described, in combination, disks each having a plurality

of notches in its periphery, a backing-roller supported between said disks, a plurality of mandrels, each having a collar, adapted to rest in said notches with the collar against the face of one disk, and a spring acting on the mandrels to hold the collars therein against the face of said disk.

7. In a machine of the character described, in combination, spaced disks, a backing-roller between said disks, a frame or slide supporting the bearings for said disks, a bed-plate in which said slide is movable.

8. In a machine of the character described, in combination, spaced disks, a backing-roller between said disks, a frame or slide supporting the bearings for said disks, a bed-plate in which said slide is movable, and means to lock said slide from movement.

9. In a machine of the character described, in combination, a rotatable mandrel carrying a plurality of spaced cutters, a pair of notched revolving disks adapted to support a plurality of tube-supporting mandrels, supports for said disks movable to and from said cutter-mandrel.

10. In a machine of the character described, in combination, a rotatable mandrel carrying a plurality of spaced cutters, a pair of notched revolving disks adapted to support a plurality of tube-supporting mandrels, supports for said disks movable to and from said cutter-mandrel, and a backing-roll between said notched disks.

11. In a machine of the character described, in combination, a cutter, a pair of notched disks adapted to support a tube-supporting mandrel, supports for said disks movable to and from said cutter.

12. In a machine of the character described, in combination, a cutter, a pair of notched disks adapted to support a tube-supporting mandrel, supports for said disks movable to and from said cutter, and a backing-roll carried by said notched disks.

In testimony of which invention I have hereto set my hand at Westpoint on this 2d day of September, 1904.

ORMOND M. LISSAK.

Witnesses:

WM. WARD,
T. W. COE.