

C. A. SEELEY.
MACHINE FOR APPLYING TIPS.

No. 589,579.

Patented Sept. 7, 1897.

Fig. 1.

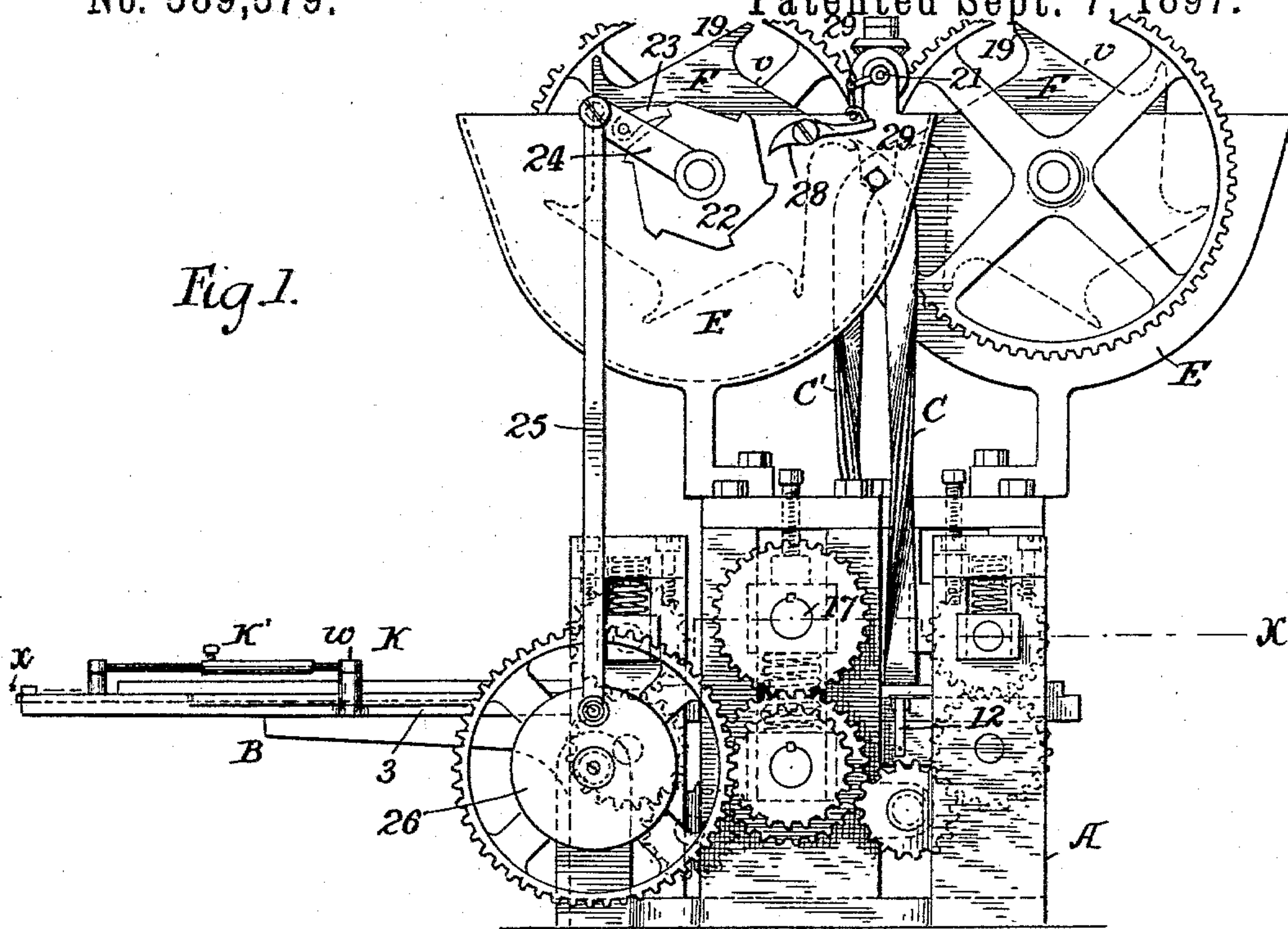
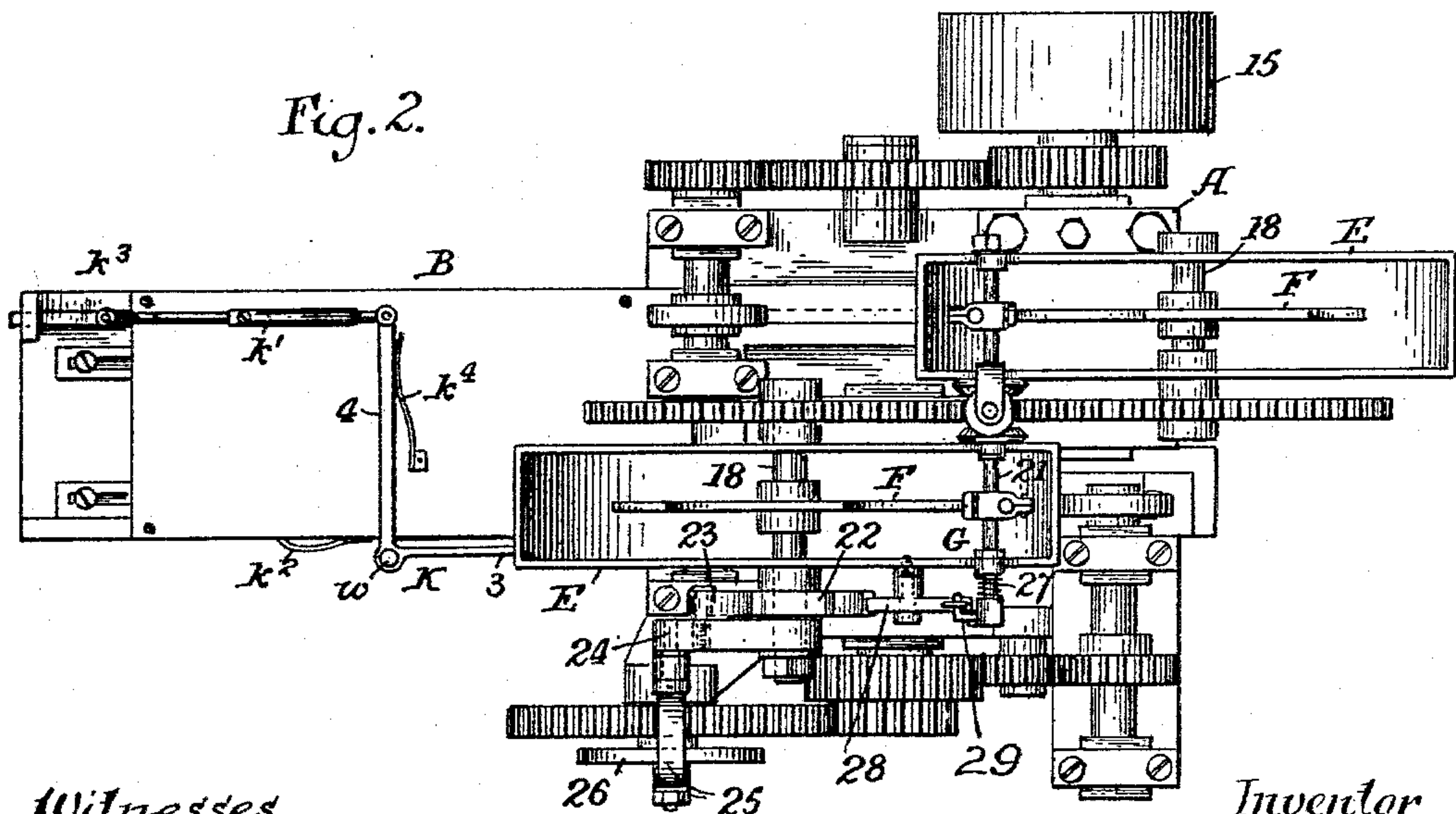


Fig. 2.



Witnesses

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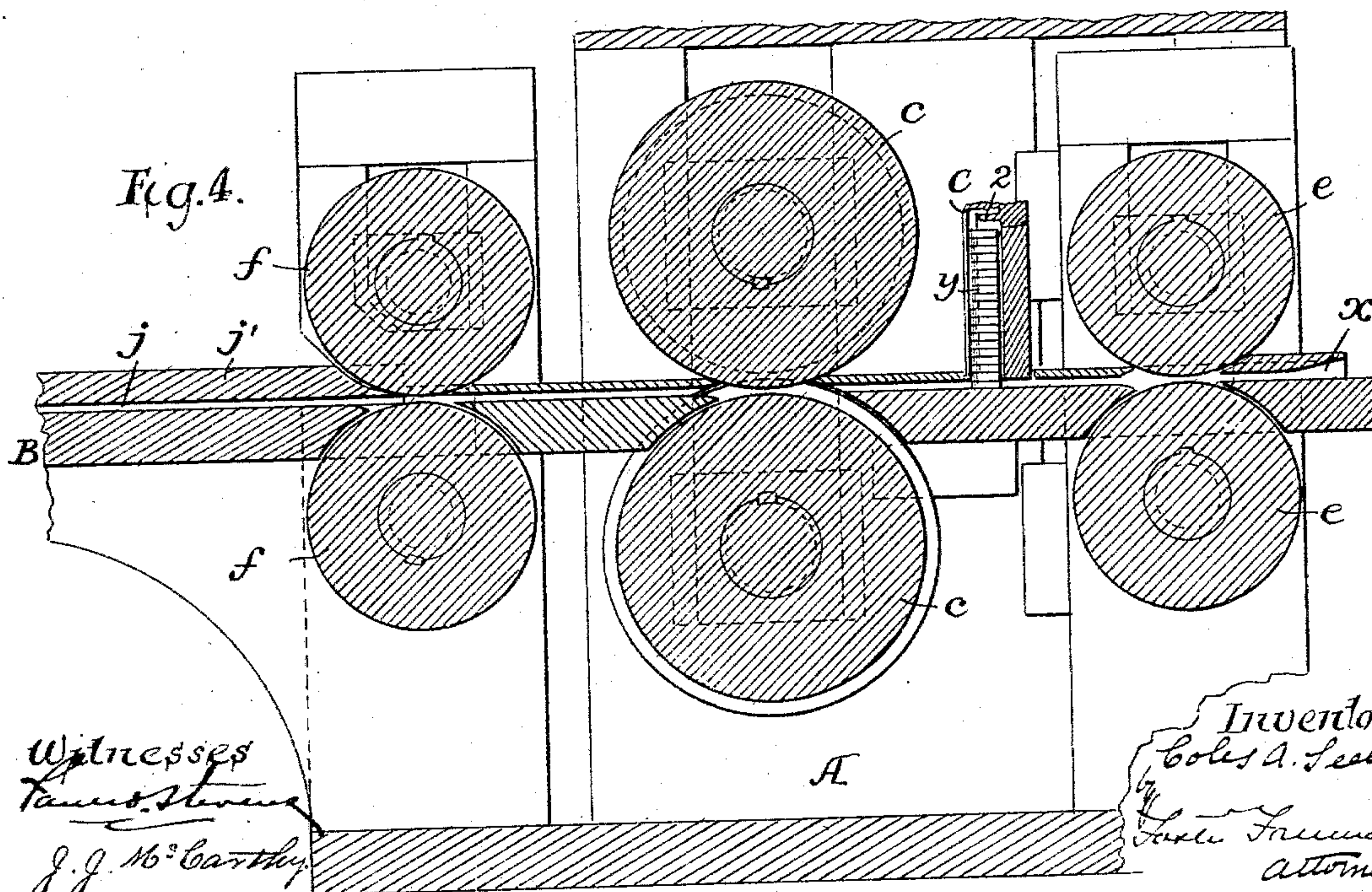
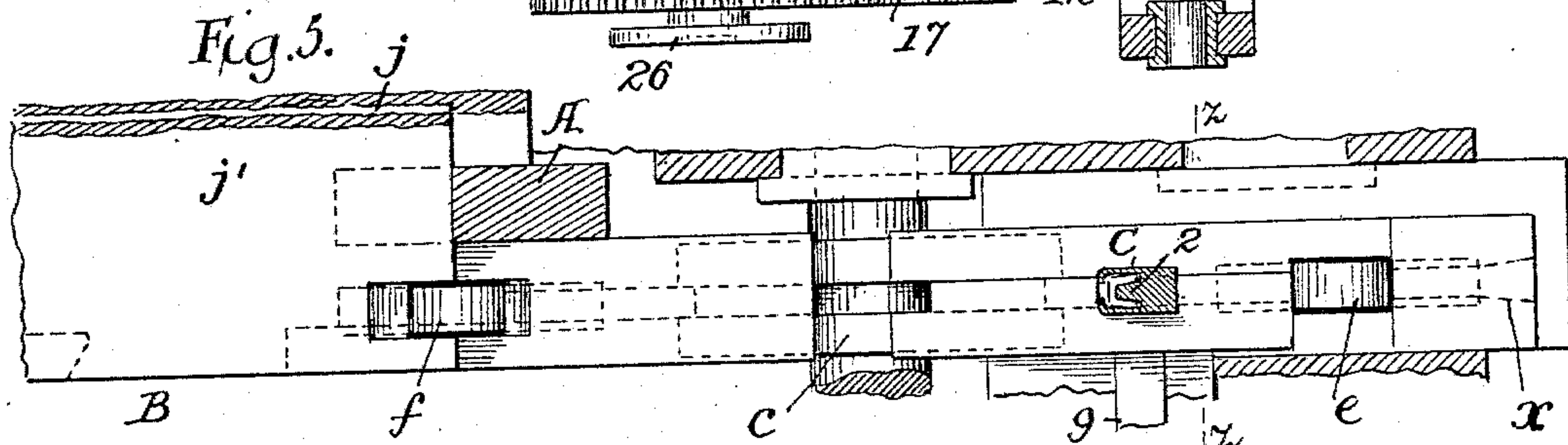
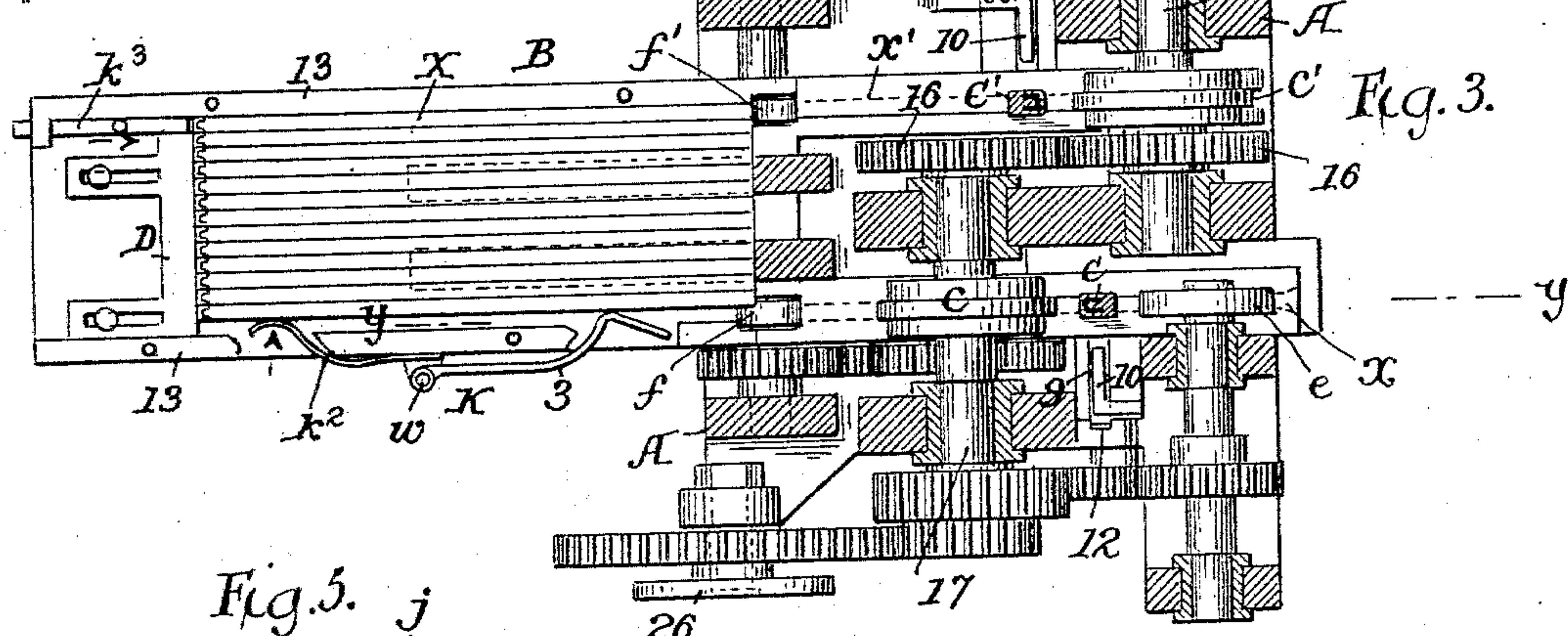
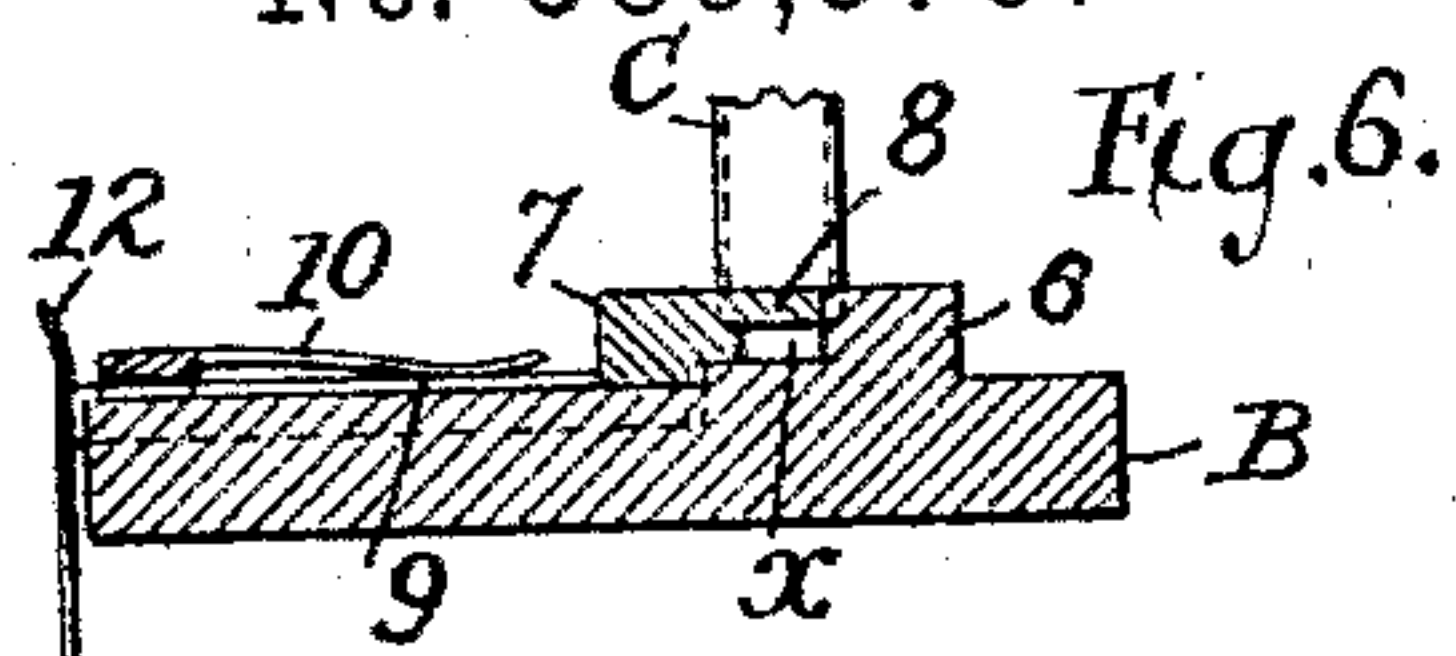
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Fig. 8.

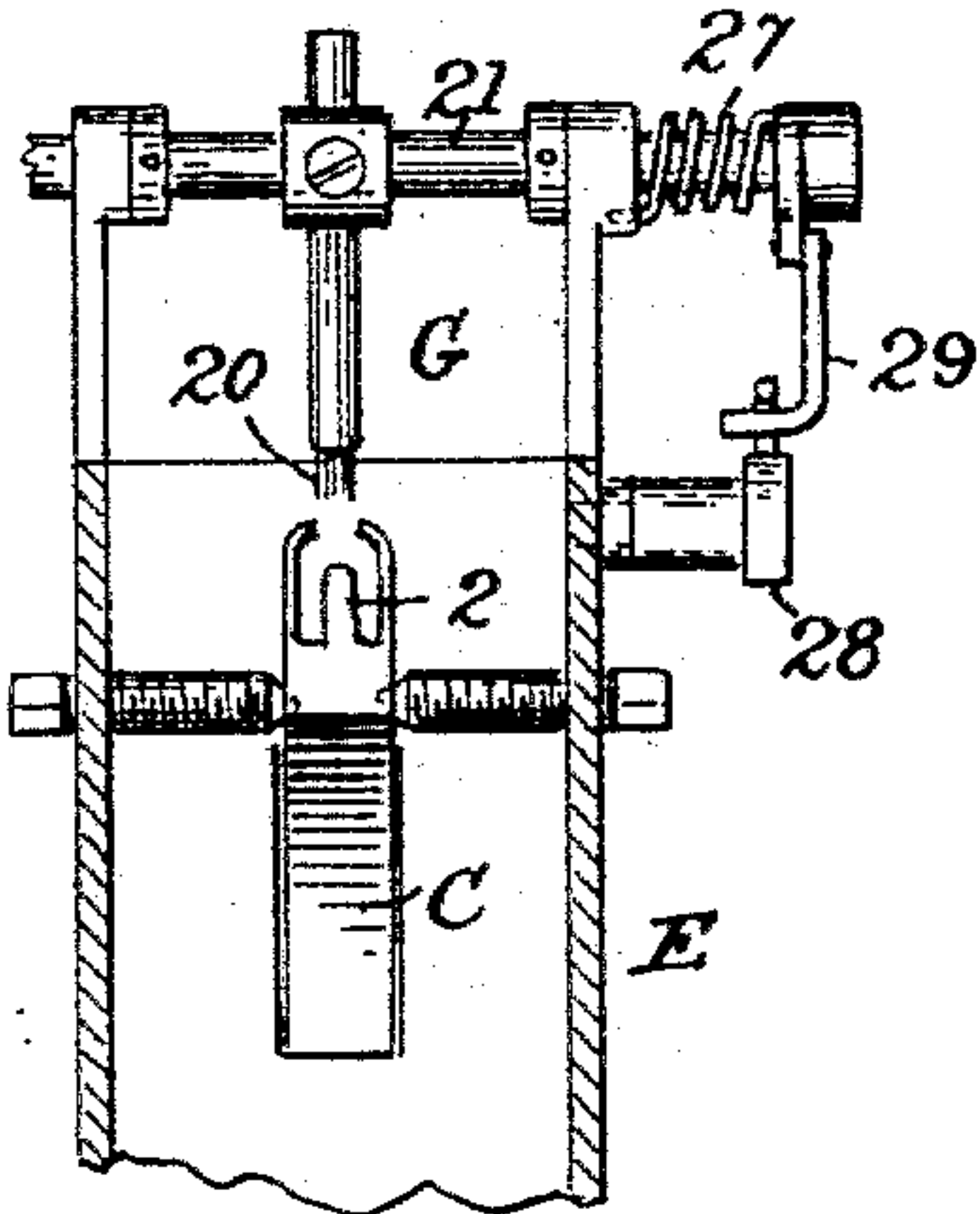


Fig. 7.

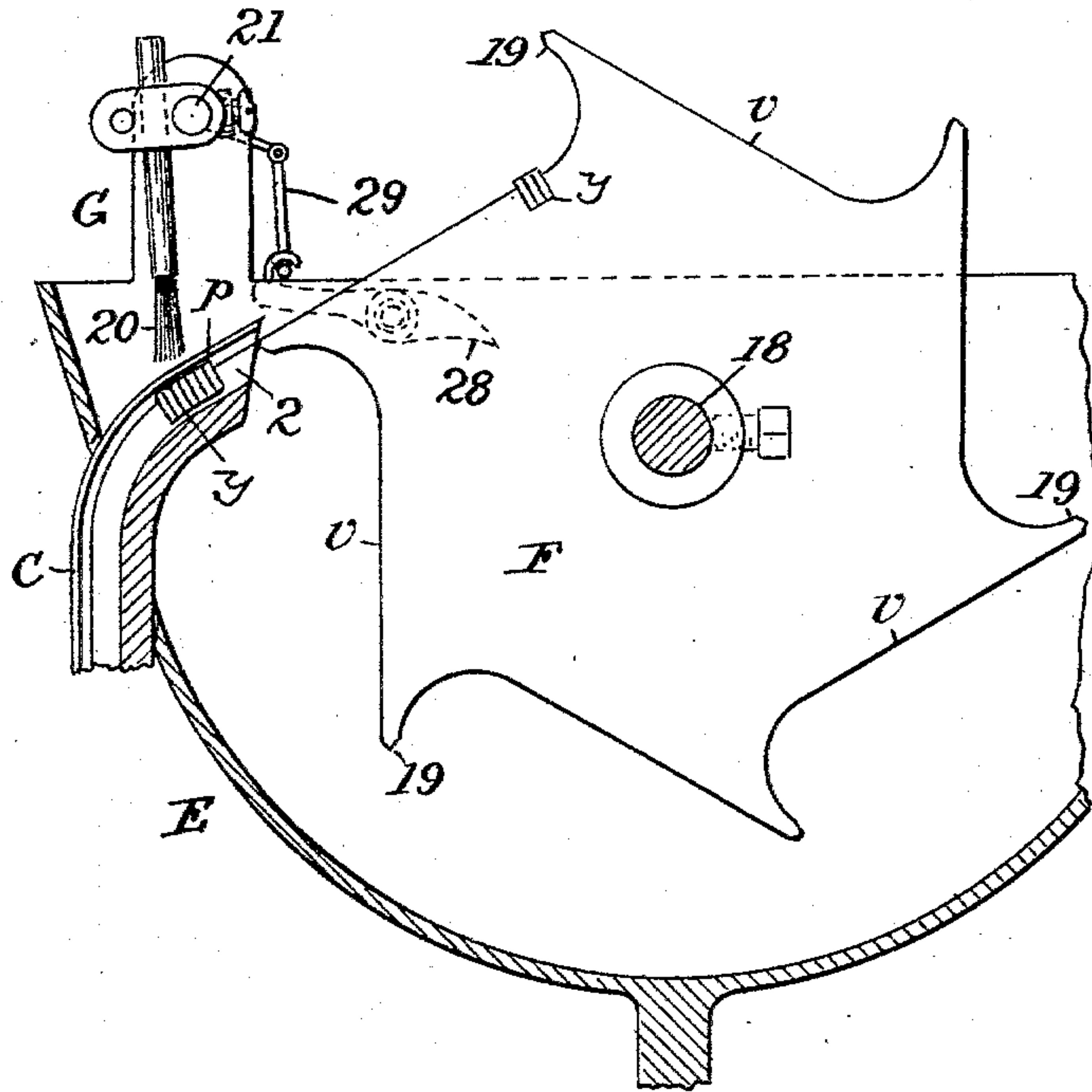


Fig. 9.

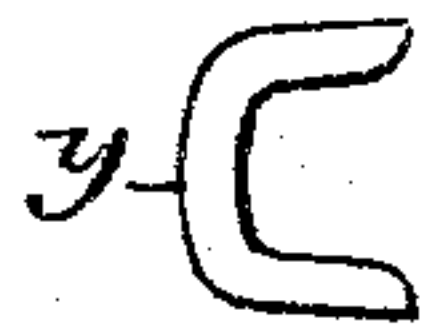


Fig. 10.



Fig. 11.



Fig. 12.



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UNITED STATES PATENT OFFICE.

COLES A. SEELEY, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE
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MACHINE FOR APPLYING TIPS.

SPECIFICATION forming part of Letters Patent No. 589,579, dated September 7, 1897.

Application filed January 15, 1897. Serial No. 619,370. (No model.)

To all whom it may concern:

Be it known that I, COLES A. SEELEY, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Applying Tips, of which the following is a specification.

My invention is a machine for applying and compressing tips automatically upon the ends of blades, the said machine being constructed as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of said machine. Fig. 2 is a top view. Fig. 3 is a horizontal section at line $x x$, Fig. 1. Fig. 4 is an enlarged sectional elevation at line $y y$, Fig. 3, through one end of the feed-wagon. Fig. 5 is a top view of the same, the upper rollers being omitted. Fig. 6 is a transverse sectional view of the same at line $z z$, Fig. 5. Fig. 7 is a sectional enlarged elevation of one of the hoppers. Fig. 8 is a transverse section of Fig. 7. Figs. 9 and 10 show a face and perspective view of one of the tips enlarged. Figs. 11 and 12 show a side and edge view of a blade before and after being tipped.

The object of my invention is to apply tips, such as shown in Figs. 9 and 10, to the ends of steel blades X and to compress the same upon the blades, which are generally incased in paper or other fabric, so that the compressed tips are brought to a level with the surfaces of the covered blades.

Before describing the improved machine in detail I will set forth its general operation.

There is a channel x , Figs. 4, 5, and 6, into which each blade X passes longitudinally, and above one part of this channel is a chute C, with a central rib 2, down which pass the tips y into the channel x , the parts being arranged so that the tips will lie in a pile in the chute C, the lowest tip in the channel x , so that as the blade X passes along the channel (being fed by wheels $e e$ or otherwise) its end will enter the lowest tip and carry the latter along the channel to a clamping device—as, for instance, two presser-wheels $c c$, the lower having a grooved periphery to receive a flange upon the upper, and by these

wheels the tip is compressed both laterally and vertically onto the blade. When the blade is covered into the fabric, which need not always be the case, the tip will be pressed into the fabric, so that the surfaces of the blade and tip will be flush. The tipped blade is then fed forward by two wheels $f f$ or otherwise into a narrow transverse chamber j until its end strikes an adjustable gage D. A spring k^2 tends to thrust each blade sideways in the direction of the arrow, Fig. 3, so that the following blade will not strike the preceding one, but will be laid alongside of it until the following blade strikes the spring k^2 , when both blades will be pushed laterally out of the way of the succeeding blade, and so on until the chamber j is full. As each blade enters the chamber j it strikes the arm 3 of a bell-crank lever K, pivoted at w , and rocks the same against the action of the spring k^4 , which bears against the other arm 4 of the said lever. The arm 4 is connected by an adjustable connecting-rod k' with the slide k^3 , so arranged that as it moves in the direction of its arrow, Fig. 3, under the action of the lever K it will push the opposite blade X toward a pair of feed-wheels f' , similar to the feed-wheel f , but moving in an opposite direction, and by which the blade will be carried through a channel x' and beneath another chute C' and beneath another pair of compression-wheels c' , so that a tip will be applied to and compressed upon the opposite end of the blade.

Where a tip is to be applied only to one end of the blade, the duplicate features of the apparatus may of course be dispensed with.

I will now describe the details of the apparatus as shown in the drawings, but it will be obvious that these details may be varied to a great extent while securing the different operations before described.

The frame A of the apparatus supports a table B, having a rib 6, stationary at its upper face and opposite an adjustable bar 7, having an overhanging flange 8 and forming with the rib 6 the channel x . The bar 7 is made adjustable inasmuch as the blades X vary slightly in width, and to permit the bar to yield under the pressure of any of the wider ribs it is provided with a guide-arm 9, fitting a

groove in the table B, and against which bears the spring 10, tending to hold it down, a spring 12 bearing against the end of the bar tending to thrust it inward. In the flange 8 is an opening arranged directly below the chute C.

The bar 7, as shown, extends only over that part of the channel between the wheels *c* and *e*, the other portions of the channel having permanent covers or being uncovered, if desired.

The chamber *j* is formed between the face of the chamber B and a flat cover-plate *j'*, which is bolted to the tops of side flanges 13 of the table, leaving sufficient intermediate space for the blades. The gage D is adjustable, so as to be set in different positions for blades of different lengths. For the same reason the connecting-rod *k'* is adjustable in length, as shown.

The shafts of the different sets of rollers turn in suitable bearings in the frame, and preferably these bearings are in blocks sliding in grooves in the frame and held in position by springs, as shown, so as to permit the rollers to yield to a slight extent. As shown, the pair of pressure-rollers *c* is carried by the driving-shaft 14, having the belt-pulley 15, and the shaft 17 of the pressure-rollers *c* is driven from the shaft 14 through the medium of gears 16, and suitable gears transmit motion from the two shafts 14 17 to the shaft of the other rollers.

Any suitable means may be employed for feeding the tips to the chutes, but I will now describe an apparatus which has proved to be effective.

The upper end of each chute extends into a hopper E, Figs. 1, 2, 7, and 8, and in which the mass of tips is placed, and in this hopper turns a large feed-wheel F, secured to a shaft 18, and having a series of tangential edges *v*, beyond which extend fingers 19, so that as the feed-wheel revolves the fingers will pick up such of the tips as are in position to be engaged thereby. As any one of the edges is brought to the top position and the next forward finger approaches the end of the rib 2 of the chute there will be formed an inclined continuation of the said edge down which the tip or tips on the edge *v* will slide onto the rib, as shown in Fig. 7. In order to allow sufficient time for this operation, the wheel F is turned intermittently and is arrested as each edge *v* is in line with the rib.

To prevent an undue accumulation of the tips in the chute and to always maintain the end of the same open, so that none of the ribs will be crushed between the fingers 19 and the edge of the chute, I provide a detaching device G, which detaches from the chute all of the tips which may be placed in the latter beyond a certain point—for instance, the point *p*, Fig. 7. A revolving wheel, reciprocating finger, or other detaching device may be employed, but I prefer a vibrating brush 20, secured to an arm on the rock-shaft 21, which

rocks inward as soon as any finger 19 passes below the end of the chute and wipes off into the hopper any of the tips that rest on the rib 2 beyond the point *p*.

Any suitable means may be employed for imparting intermittent motion to the feed-wheel F. As shown, a ratchet-wheel 22 on the shaft 18 with the same number of teeth as the feed-wheel is engaged by a pawl 23 on a rock-arm 24, vibrating on the shaft 18, and to which motion is imparted by a connecting-rod 25, reciprocated upon a transverse disk 26 on any one of the shafts of the machine. The brush-shaft 21 is rocked in one direction by a spring 27 and in the other by a rocking-lever 28, one arm of which is struck by the teeth of the ratchet-wheel 22, the other being connected by a link 29 with an arm of the rock-shaft 21.

Where there are two hoppers, as shown, one is arranged to operate in connection with each chute.

The chutes C C' are illustrated as twisted for the purpose of turning the tips to present them properly to the ends of the blades, but, if desired, the chutes might extend from the opposite ends of the hoppers without being twisted.

It will be evident that there may be two or more parallel channels *x* with corresponding chutes or holders for the tips, two or more blades being fed simultaneously parallel to each other and thus multiplying the product.

Without limiting myself to the precise construction and operation of parts shown and described, I claim as my invention—

1. In a tipping-machine, the combination with means for feeding blades successively first in one direction and then in another, chutes or holders for tips arranged to feed the tips successively into position opposite the advancing ends of the blades, and means for compressing the tips upon opposite ends of the blades, substantially as described.

2. In a tipping-machine, the combination of a table provided with a channel, a chute arranged to communicate with said channel to supply tips thereto, a hopper for said tips, devices for feeding the tips from the hopper to the chute, and pressing-rollers arranged beyond the chute to compress the tips upon the ends of the blades passing through the channel, substantially as described.

3. In a tipping-machine, the combination with chutes or holders for containing tips, means for feeding blades successively to present first one end and then the other of each blade to the tips in the holders and means for compressing the tips upon the ends of the blades, substantially as described.

4. The combination in a tipping-machine of a table provided with a longitudinal channel for receiving the blades to be tipped, means for feeding the blades along the channel, a chute for containing the tips communicating with the channel and pressure-rollers arranged beyond the chute to com-

press the tips upon the ends of the blades passing through the channel, substantially as set forth.

5 The combination with the channeled table B, and chute C, of feed-wheels *e, f*, and intermediate pressure-wheels *c, c*, one having a groove and the other a rib, substantially as set forth.

10 6. The combination with the table B, having a longitudinal rib 6, of the movable bar 7, having the overhanging flange 8, yielding means for pressing the bar toward the rib and holding it downward, a chute communicating with the channel between the bar and
15 rib, and feed-wheels and presser-wheels, substantially as set forth.

20 7. In a tipping-machine the combination of the devices for applying and pressing tips upon blades and for feeding the blades, of a chamber *j*, and means for moving the blades laterally and successively in said chamber, substantially as set forth.

25 8. The combination with the two sets of devices for applying and compressing tips and for feeding the blades in opposite directions of the intermediate chamber *j*, receiving the blades from one tipping mechanism and means for successively feeding the blades toward the other tipping mechanism, substantially
30 as set forth.

9. The combination with the table B, and its chamber *j*, and means for moving the blades laterally in said chamber, of two sets of tipping mechanism, a slide *k*³, and a lever

having an arm 3, extending into the chamber *j*, and connecting to operate the slide *k*³, substantially as set forth.

10. The combination with a hopper containing tips or other articles, of a chute or holder communicating with the hopper, mechanism within the hopper including a rotating
40 carrier for transferring tips from the hopper to the chute, and devices for transferring tips from the chute back into the hopper to constantly maintain a clear space in the chute opposite the carrier, substantially as described.

11. The combination with the blade and tip-feeding devices, of compressor-wheels arranged beyond the tip-feeding devices to compress the tips upon the ends of the blades, substantially as described.

12. In a tipping-machine, the combination with means for feeding blades in one direction, of devices for applying and securing a tip to one end of the blades, means for feeding
55 the blades in the opposite direction, mechanism for transferring the blades into position to be engaged by said means, and devices for applying and securing a tip to the untipped end of the blades, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

COLES A. SEELEY.

Witnesses:

F. S. ANDREWS,
RUSSELL TOMLINSON.