

No. 664,429.

Patented Dec. 25, 1900.

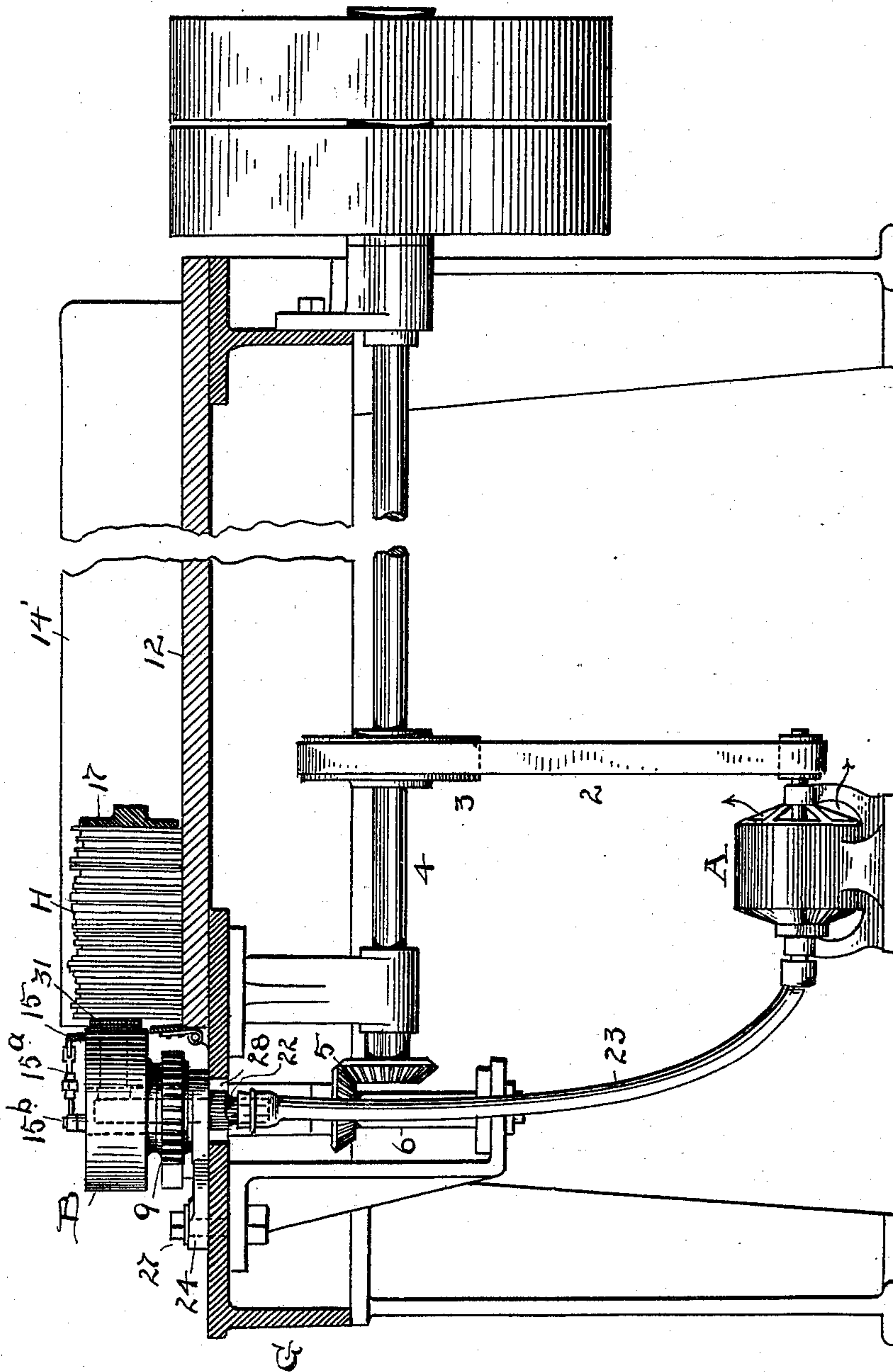
S. E. PETTEE.  
LETTER CANCELING MACHINE.

(Application filed Mar. 30, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1



ATTEST

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ATTY

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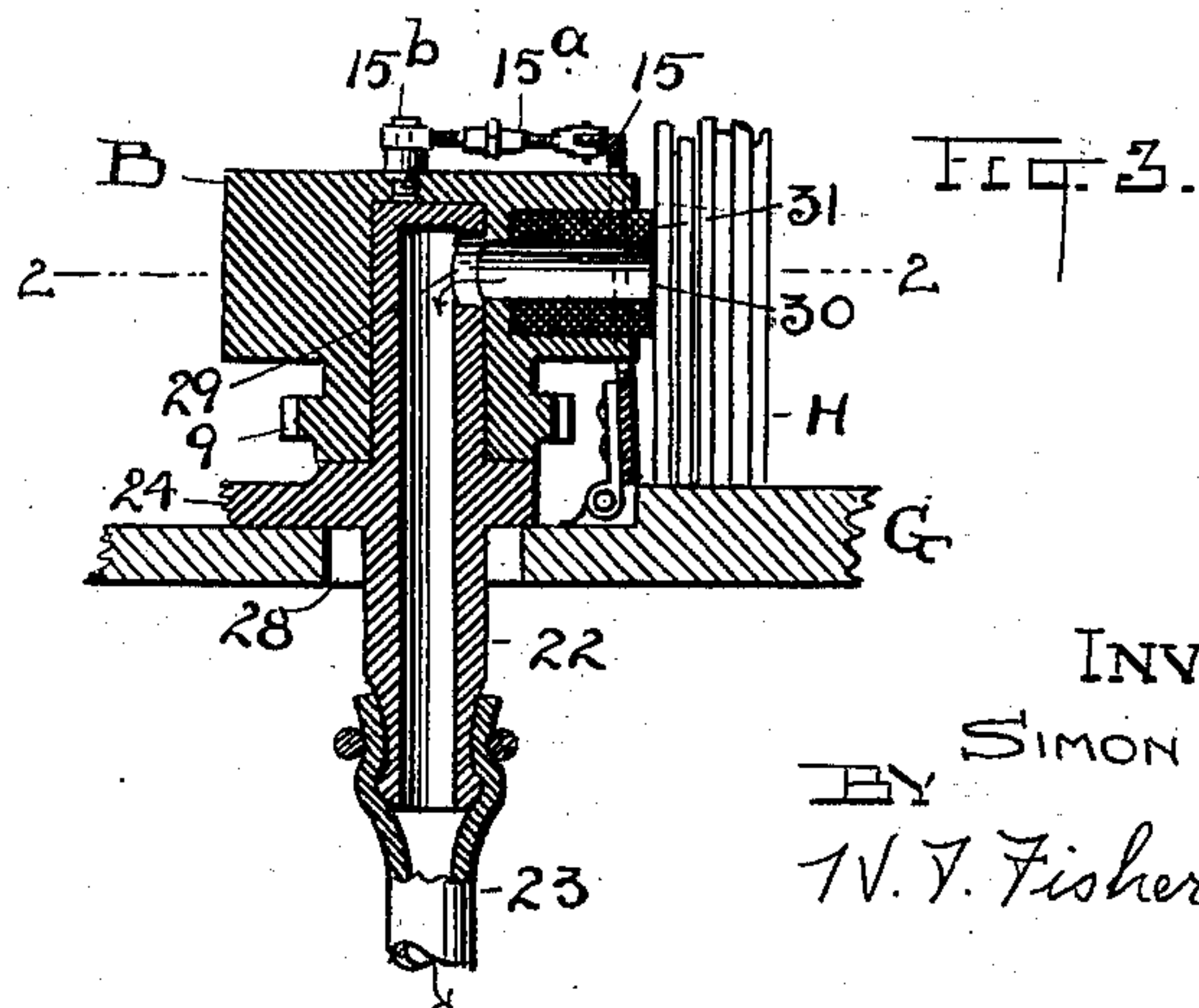
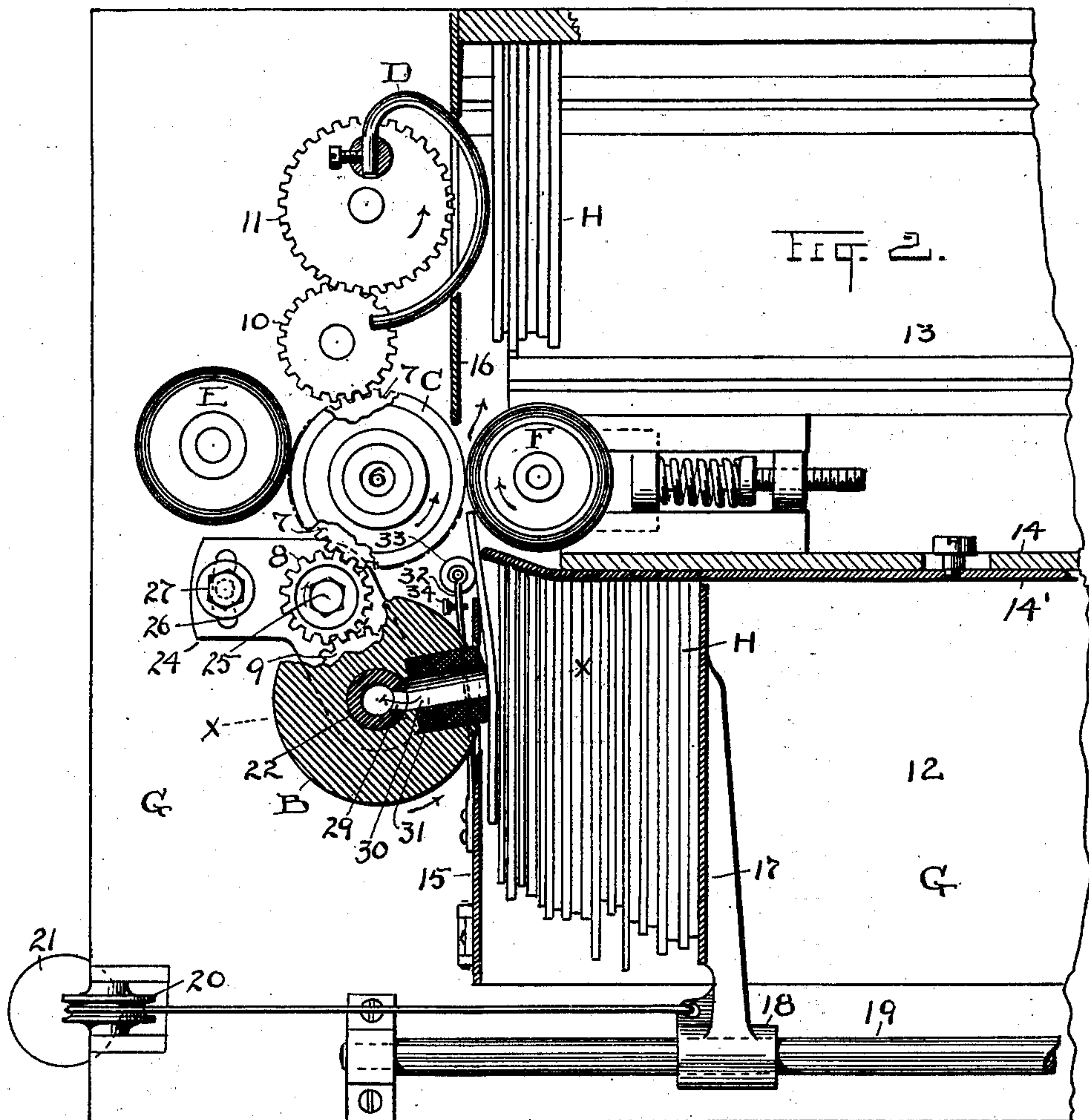
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ATTEST.

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# UNITED STATES PATENT OFFICE.

SIMON E. PETTEE, OF CLEVELAND, OHIO.

## LETTER-CANCELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 664,429, dated December 25, 1900.

Application filed March 30, 1900. Serial No. 10,730. (No model.)

*To all whom it may concern:*

Be it known that I, SIMON E. PETTEE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Letter-Canceling Machines; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to 10 which it appertains to make and use the same.

My invention relates to letter-canceling machines for post-offices; and the invention consists in certain improvements on the construction of machine shown and described in 15 my application filed October 14, 1898, Serial No. 693,487, and pertains more especially to the feeding mechanism for feeding the letters in single order to the canceling-rolls, all substantially as shown and described, and 20 more particularly pointed out in the claims.

The object of this improvement is to provide a feeding device for the canceling-rolls which will take a single letter from a bank of letters and carry it to one side into the 25 bite of the printing-cylinder and impression-roller without tearing or mutilating the face of the envelop or marring its contents.

Great difficulty has heretofore been encountered even in the best of machines in 30 feeding uniformly and regularly, owing to the variety of shapes and thicknesses of the letters to be handled. This fact, taken in connection with the tearing and mutilating of the envelopes and their contents, has proved 35 to be a serious drawback to the universal adoption of machines of this class. To overcome these objections, I found it necessary to provide a feeding mechanism which did not forcibly strike or engage the letters by means 40 of friction-rollers or reciprocating-needle mechanism, and the construction and arrangement of parts, as hereinafter described, were designed with that end in view.

In the accompanying drawings, Figure 1 is 45 a longitudinal section of my improved machine, showing a bank of letters in working relation to the feed-wheel and the pneumatic connections from said wheel to the suction-pump. Fig. 2 is an enlarged plan view, 50 partly in section, of the front end of the table and the feeding, printing, and banking mechanism thereon. Fig. 3 is a central ver-

tical section of the table and feed-roller on line *xx*, Fig. 2.

The elements most important in this im- 55 provement are a fan or plenum engine A and a rotating feed-wheel B or other feed member connected to said pump. The fan A is driven by means of a belt 2 from the pulley 3 on power-shaft 4 of the machine, and the 60 other operative members, comprising the feed-roll B, printing-cylinder C, and banking-fingers D, are also driven through this shaft 4. Power connection is had through the bevel- 65 gearing 5 on the end of shaft 4 and the vertical shaft 6 upon which the printing-cylinder is mounted, and gear 7 on this shaft 6 transmits the power to feed-roll B and bank- 70 ing-fingers D through the gears 8, 9, 10, and 11, respectively. An inking-roller E and an impression-roller F bear against the printing-cylinder and are rotated through their 75 frictional contact. All these members and their gears are located on the top of a table G, which is divided at the right into two halves 12 and 13 by a central wall 14 and which, with 80 the end walls 15 and 16, form separate feeding and banking boxes or ways, within which the letters H are moved forward and back in batches. The uncanceled letters are banked 85 edge up and end edges abutting the guide-plate 14' in box 12, and the end letter at the extreme left lies with its face flat against end wall or plate 15. The letters are held loosely 90 compressed and are fed forward by means of the plate 17, mounted on an arm of the sliding member 18, which is sleeved on the rod 19, fastened to table G. A flexible connection attached to member 18 rides over a sheave 20 and a weight 21 on the end thereof feeds 95 the plate 17 and letters H forward as each rotation of feed-roll B takes a letter from the batch.

The feed-roll B is supported to rotate on a hollow vertical stud or shaft 22, closed at the 100 top and open at the bottom, where it is connected up to a flexible hose or pipe 23, which leads to the fan or plenum engine A. The shaft 22 is rigid with a plate 24, which is pivoted to the table G at 25 and which has an extension provided with a slot 26 and a bolt 27 to fasten the plate to the table. With this construction roll B can be set or adjusted in relation to the end letter in box 12, and a slot



28 in the table G allows the movement of the lower extension of shaft 22. In the side and near the top of shaft 22 is an opening 29, which is on a line with an inlet-opening 30 in the rubber segment 31, fastened within and at one side of roll B, and at every revolution of roll B, when these openings 29 and 30 meet, suction is had about the inlet at the periphery of the roll. The suctional area at the periphery of the roll is limited and controlled through the rotary cut-off-valve action of the openings 29 and 30 as they pass by each other at shaft 22, and suction is only on when the inlet-opening 30 is opposite the end letter. The outer portion of soft-rubber segment 31 extends slightly beyond the periphery of roll B, and its face conforms to the curvature of the roll as well, and it is this rubber-segment face that the letter bears against. As the segment-inlet 30 approaches the face of the letter the opening of the valve occurs, and the suction created by fan A draws the end letter against the rubber face of the segment and holds it there until the roll B has rotated sufficiently to carry it far enough to one side and into the bite of the printing-cylinder and impression-roller. A slight further rotation cuts off the valve, and it remains closed until the roll B has nearly made a complete rotation or until the openings 29 and 30 meet again.

The suctional feeding arrangement has two important and meritorious features by which a positive feed of a single letter at each rotation of the roll B is assured and which will not mutilate, tear, or destroy the envelop or its contents. The feeding of a single letter at each rotation positively occurs because the suctional action draws the end letter away from the next or following letter, and before the gap is closed by the movement forward of the batch, which is timed or controlled through weight 21, the end letter has been discharged into the bite of the printing-rolls. The batch of letters has now full time to move forward because a complete rotation of roll B must now be made before another letter is taken. Mutilation or tearing of the letters is avoided, because the suctional force is only sufficient to pull each letter forward and hold it to the rubber face or seat. The suction is not and need not be very great to accomplish this point, and as the letter is fed forward by the rotation of roll B it is released from the roll segment-face by the closing of the valve and the cutting off of the suction and by the natural separation following the straight travel of the letter and the rotary line of travel of the segment-face, the edge of interposing plate 15 serving as a shearing or separating member.

The segment 31 is preferably made of soft rubber, so as to give the letters a soft seat and avoid tearing of the envelop if its contents are of a hard or uneven nature and also to make a better adhesive surface for assisting in the feeding of the letter.

The end edges of the letters in box 12 abut against an adjustable plate 14', which extends forward to a point substantially on a line with end wall or plate 15, and is there bent back at an angle to allow the letters to more freely pass around the end of same. Upon plate 15 a flat spring 32 is mounted, which extends to a point nearly opposite to the end of plate 14', and a roller 33 is mounted in the free end of this flat spring, which bears against the face of the letters as they are fed to the printing-rolls. The bent end of plate 14' and the spring 32 and its roller guide each letter to the printing-rolls and are also of assistance in preventing more than one letter at a time from feeding forward.

A set-screw 34 in the free end of the spring 32 affords means to set the roller 33 in any desired relation to the face of the letters, so as to obtain the best bearing results.

The plate 15 is hinged at its bottom edge to the table G, and a connecting-rod or pitman 15<sup>a</sup> is pivotally connected to the top of the plate and to a pin 15<sup>b</sup> set slightly off the center on the top face of the feed-roll B. The rotation of feed-roll B and this eccentric connection causes the plate 15 to rock or swing back and forth, and the pin 15<sup>b</sup> is preferably located at one side of the axial center of the roll directly opposite the letter-engaging face-segment 31 to swing the plate 15 back as the segment 31 strikes the letter. The falling-back action of the plate 15 relieves the pressure on the letters and loosens or separates them at the moment that the segment 31 engages the end letter to feed it forward, and this loosening of the letters occurs at each revolution of the roller B and prevents more than one letter from feeding forward. The retreating or relieving action of the end plate 15 would in itself be sufficient to assure the feeding of one letter at each revolution of feed-roll B, but when taken in connection with the suctional feeding arrangement the single feed is most positive and does not fail in a single instance.

What I claim is—

1. In a machine for canceling letters, the combination of printing and discharging mechanism, means to feed a batch of letters, an end-determining plate for said letters, a guide-plate against which the end edges of the letters abut, a flat spring mounted on said end plate and having a guide-roller in its free end to bear against the face of the end letter, and a feed-roller having a letter-engaging face opposite said end letter and open to air-passages, and means to rotate said feed-roller and to create a suction at said face to feed single letters around the guide-roller and guide-plate to said printing and discharging mechanism, substantially as described.

2. In a letter-canceling machine, the combination of the canceling-rolls, a feed-roller therefor having a letter-engaging face to feed the letters singly to said canceling-rolls, a movable plate opposite said roller against



which the said letters rest, means to back said plate away from said letters when the end letter is engaged by said feed-roller face, and means to feed the letters against said plate and up to said feed-roller, substantially as described.

3. In a letter-canceling machine, the combination of the canceling-rolls and a feed-roller therefor having a cushioned segment extending beyond its periphery to engage the face of the letters, an opening through said segment and roller connected up to a plenum-engine, a movable plate opposite the peripheral face of said roller and against which the letters bear, means to rotate said roller, and means to move back said plate when said segment engages the letters, substantially as described.

4. In a letter-canceling machine, the combination of the canceling-rolls, a feed-roller therefor having a letter-engaging face open to a plenum-engine, a pivoted plate between said roller and the letters opposite said en-

gaging face, a connecting-rod for said plate actuated by said roller to rock said plate, and means to rotate said feed-roller, substantially as described.

5. In a letter-canceling machine, the combination of the canceling-rolls, a feed-roller therefor having a valved inlet, a cushioned engaging face on said roller open to said inlet, a plenum-engine having pipe connections with said roller-inlet, a pivoted plate opposite said roller and against which the letters normally rest, a connecting-rod for said plate having an eccentric connection with said roller, and means to rotate said roller and rock said plate back when the end letter is engaged by its cushioned face, substantially as described.

Witness my hand to the foregoing specification this 20th day of February, 1900.

SIMON E. PETTEE.

Witnesses:

H. E. MUDRA,  
R. B. MOSER.