No. 739,935. PATENTED SEPT. 29, 1903.

C. SIMON.

CIGARETTE WRAPPING TUBE.

APPLICATION FILED FEB. 28, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

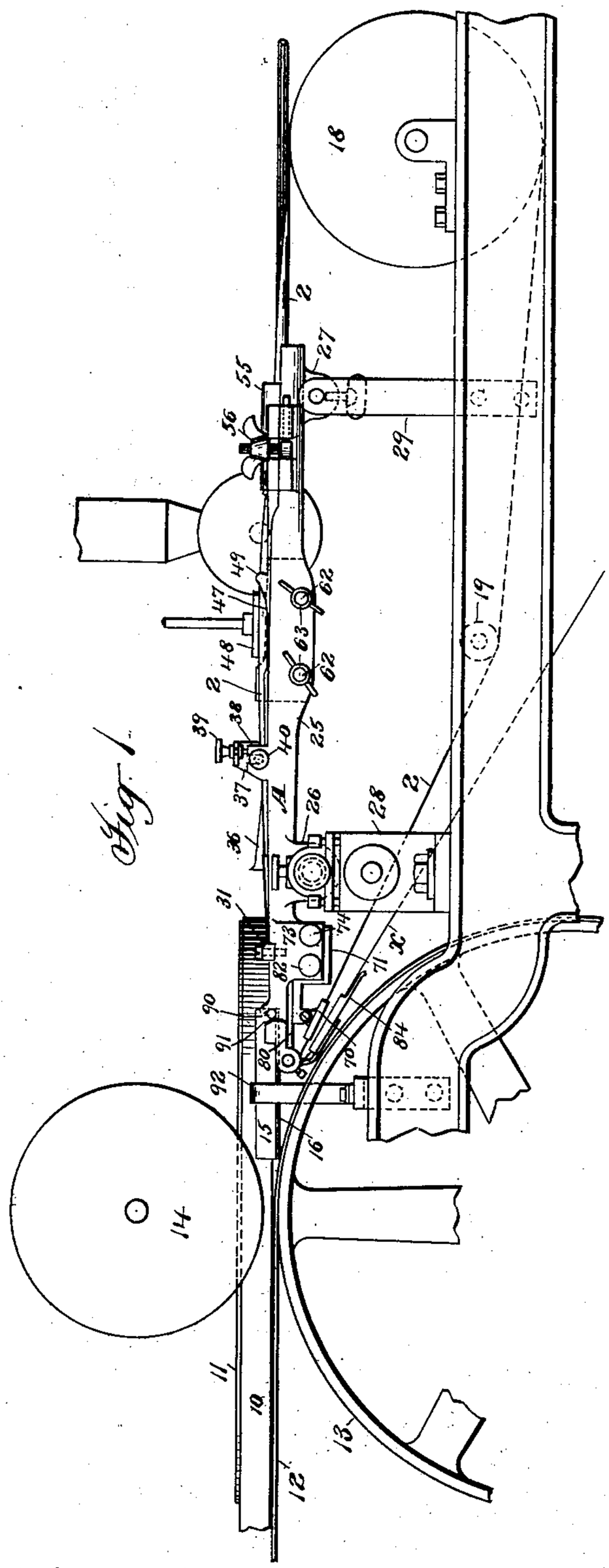

Fig. 1.

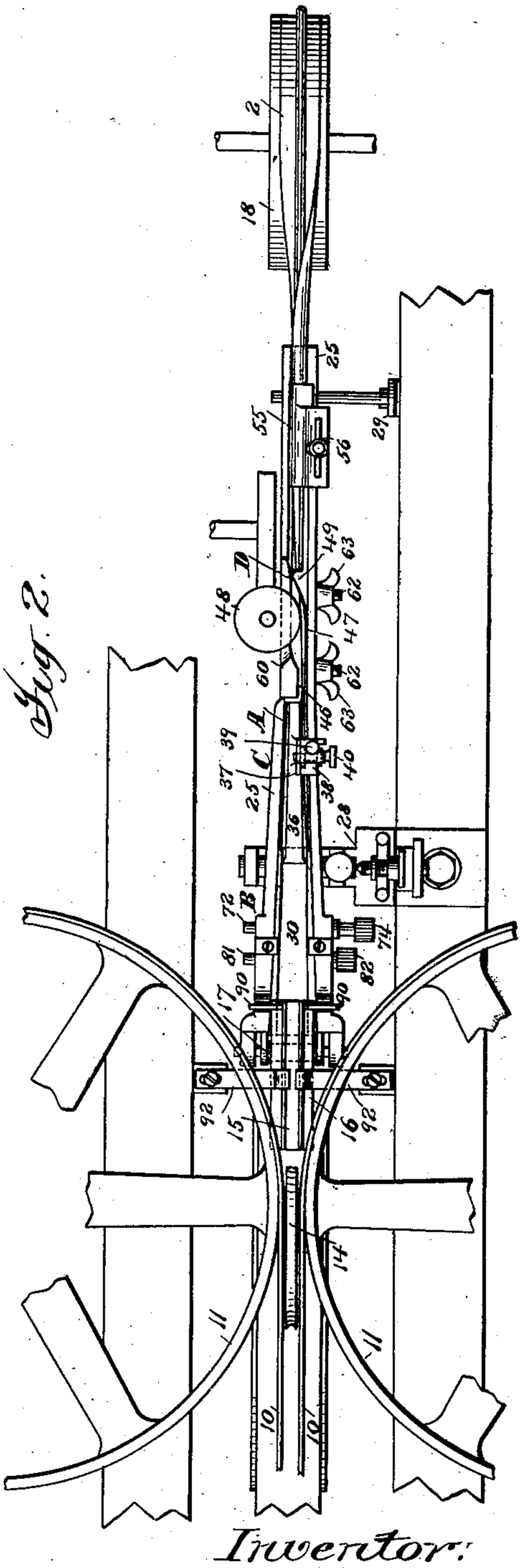

Fig. 2.

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NO MODEL. 2 SHEETS—SHEET 2.

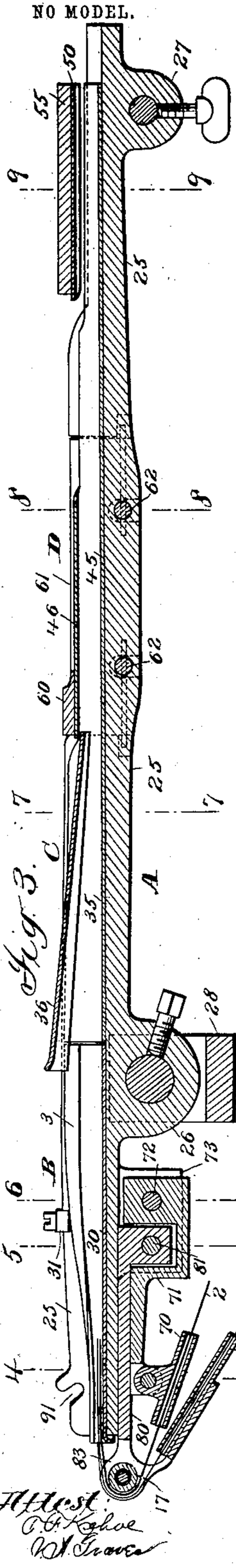

Fig. 3.

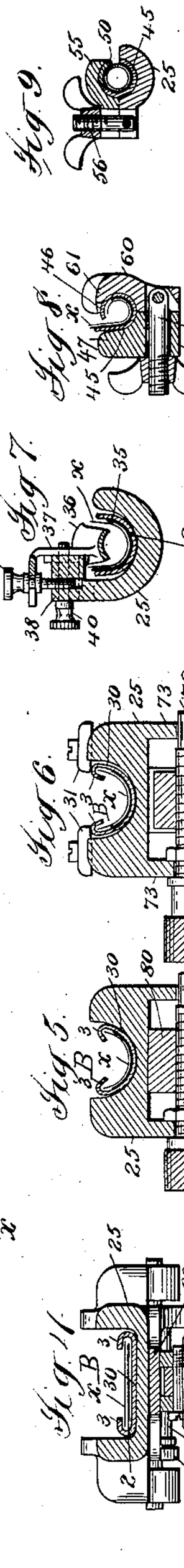

Fig. 9. Fig. 8. Fig. 7. Fig. 6. Fig. 5. Fig. 4.

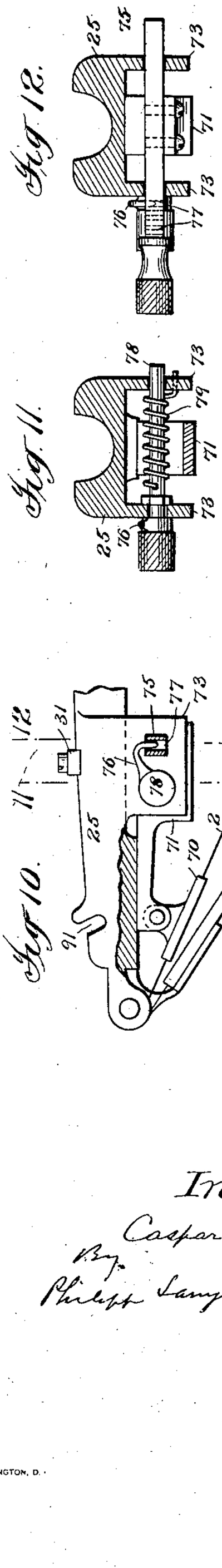

Fig. 12. Fig. 11. Fig. 10.

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No. 739,935. Patented September 29, 1903.

UNITED STATES PATENT OFFICE.

CASPAR SIMON, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE AMERICAN TOBACCO COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

CIGARETTE-WRAPPING TUBE.

SPECIFICATION forming part of Letters Patent No. 739,935, dated September 29, 1903.

Application filed February 28, 1901. Serial No. 49,278. (No model.)

To all whom it may concern:

Be it known that I, CASPAR SIMON, a citizen of the United States, residing at Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Cigarette-Wrapping Tubes, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to cigarette-machines of that class in which a continuous wrapping-strip is wrapped about a continuous filler-rod and the edges joined together to form a continuous cigarette-rod, which is afterward cut into lengths to form cigarettes; and the invention relates more particularly to that part of the machine commonly known as the "wrapping-tube."

The invention aims generally to improve the construction of such wrapping-tubes, and especially to provide a tube so constructed that parts likely to wear out in use or which for other reasons need to be renewed or replaced by other parts may be readily removed and replaced and that such parts may be inexpensively made and also to provide for the ready adjustment of parts, so as to secure the best work and to permit convenient access to parts of the tube for cleaning.

A full understanding of the invention can best be given by a detailed description of a preferred construction embodying the same, and such a description will now be given in connection with the accompanying drawings, showing such a preferred construction.

Figure 1 shows in side elevation so much of a cigarette-machine embodying my invention as is necessary to an understanding thereof. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a longitudinal sectional view of the wrapping-tube. Figs. 4, 5, 6, 7, 8, and 9 are cross-sectional views taken, respectively, on lines 4, 5, 6, 7, 8, and 9 of Fig. 3. Fig. 10 is a detail illustrating a slight modification; and Figs. 11 and 12 are cross-sectional views taken, respectively, on lines 11 and 12 of Fig. 10.

Referring to the drawings, the tobacco is advanced to the wrapping-tube in the form of a continuous filler-rod from feeding devices comprising side belts 10, turning about wheels 11, a bottom belt 12, turning about wheel 13, and a compressing-disk 14. The tobacco rod is advanced, by these or other suitable feeding devices between side guides 15 of a bridge or throat-piece 16, to the trough-like entrance of the wrapping-tube A, where it comes onto the wrapping-strip x and is advanced therewith through the wrapping-tube by means of an endless belt 2. The belt 2 passes about a guide-roll 17 at the front end of the wrapping-tube and just beyond the beginning of the trough-like portion thereof, and passing thence through the wrapping-tube turns about a wheel 18, by which it is driven, and thence passes back past the tension-roll 19 to the guide-roll 17.

The wrapping-tube consists of the tube proper—that is, the parts with which the belt, wrapper, and tobacco come in contact and by which the wrapping operations are directly performed—and a permanent supporting part by which the various parts of the wrapping-tube proper are carried. This supporting part or casing 25 may be of any suitable construction, but is preferably formed of a solid metal table or bar having a groove extending longitudinally thereof, in which the wrapping-tube proper is set. This supporting-casing may thus be made of sufficient weight to give rigidity and strength to the whole structure and properly support the parts of the wrapping-tube in operative position and enable them to resist the strains incident to the operation of the machine. The casing 25 may be supported in any suitable manner, but is preferably formed with depending lugs 26 and 27, by which it is secured to the frame of the machine, as by means of brackets 28 and 29.

The wrapping-tube proper is preferably formed of sheet metal and may be divided roughly into a trough-like entrance portion B, a compressing portion C, and a wrapping and sealing portion D. As here shown and as preferred, the portion B of the tube is formed separately from the main part of the tube formed of the portions C and D; but it will be understood that the invention is not to be limited either to forming the portion B

separately from the rest of the tube or to forming the portions C and D or parts thereof in one piece. The portion B consists of a tapering trough 30 of substantially flat cross-section at the entrance end, as shown in Fig. 4, and becoming gradually of curved cross-section, as shown by Figs. 5 and 6, until it is substantially semicircular in cross-section at the farther end, and its edges are provided with inwardly-extending guiding-flanges 3. The groove of the casing 25 at and near the entrance or front end of the casing is of a form corresponding to the trough 30, and the trough 30 is secured removably in place in the groove of the casing, as by means of clips 31. The feeding-belt 2 and the wrapper-strip *x* as they pass through this section of the wrapping-tube will have their edges gradually bent upward on either side of the filler-rod.

The compressing portion C of the tube is of tapering form and is formed by a tapering trough 35, forming the bottom and sides of this portion of the tube, and a cover portion or compressing-tongue 36, by which the tobacco is compressed as it is advanced between the upturned edges of the wrapper. This tongue 36 is preferably curved in cross-section and tapered and is of such width as to leave sufficient space between its edges and the side walls of the trough 35 to form guiding-slots for the edges of the belt 2 and wrapper *x*. It may be supported in any suitable manner to avoid interference with the edges of the wrapper and belt, but is preferably adjustably suspended from the casing 25 by means of an arm 37 extending upward from the tongue and secured to a bracket 38 on the casing 25 by means of adjusting-screws 39 and 40, whereby the tongue may be readily adjusted vertically. In passing through the portion C of the tube the edges of the wrapper will be turned still farther upward, and the tobacco will be compressed, so as to permit the edges of the wrapper to be turned down and lapped over the top thereof in their further progress through the tube.

The wrapping and sealing portion D of the tube is formed of a trough portion 45, forming the bottom and sides of this portion of the tube and preferably formed integral with the tapering trough 35 of the portion C. One edge of the trough 45 is extended upward to form a curved deflecting-flange 46, extending from and beyond the end of the compressing-tongue 36, by which flange one edge of the wrapper and belt are turned down over the tobacco rod. The other edge of the trough opposite the flange 46 is extended upward to form a vertical pasting-flange 47, against which the other edges of the wrapper and belt travel and by which they are supported for the application of a line of paste to the edge of the wrapper by a pasting-disk 48 or other suitable means. Beyond the point at which the paste is applied to the edge of the wrapper the flange 47 is curved inward and extended to form a deflector 49, by which the pasted edge of the wrapper is turned over the edge which has been previously turned down over the tobacco. The pasted edge of the wrapper is then further deflected and pressed down into contact with the other edge of the wrapper by passing under the end of a pressing-flange 50, the wrapper-tube being thus closed and sealed about the tobacco rod, the opposite flange 46 being cut away to permit this folding down of the pasted edge of the wrapper. After the edges of the wrapper are thus brought together they are held in contact by pressure of the flange 50 as the cigarette-rod thus formed passes onward beneath this flange. The continuous cigarette-rod thus formed may be cut into proper cigarette lengths by any suitable mechanism, as usual in this class of machines.

The flange 50 is preferably formed separate from the trough-like portion 45 of the tube and carried by an arm 55, forming a part of the casing 25, but formed separately from the main portion of the casing and removably secured thereto, as by means of a pivoted screw-rod and thumb-nut 56. The flange 50 may thus be readily removed to permit access to the interior of this portion of the tube, as is often desirable for the purpose of cleaning off paste which accumulates thereon from the pasted wrapper.

The groove in the parts of the casing 25, which support the portions C and D of the tube, is shaped to conform to the bottom and sides of the trough-like parts 35 and 45 of the tube, and the casing is provided with suitable means for securing and holding the tube in place. For this purpose a portion 60 of one side of the casing is removably secured to the main portion of the casing, so that it may be moved into and out of position to clamp the tube in the groove of the casing. This movable or clamping portion of the casing is preferably formed by that part of the casing which engages that part of the side of the tube which carries the deflecting-flange 46, and it is preferably provided with a flange 61 to extend over and bear on the flange 46 of the tube, this flange 61 being partly cut away, as shown best in Figs. 2 and 8, so as not to interfere with the pasting-disk 48. Any suitable means may be provided for adjusting and securing this clamping-section 60 of the casing; but it is preferably pivotally mounted on pins 62, extending through the body of the casing and carrying thumb-nuts 63, by which the pins may be moved to draw the clamping-section into position. The removable arm 55 also acts as a clamp on the end of the tube.

It will thus be seen that all the parts of the tube proper are removable from the casing and may be quickly and easily placed and secured in position in the casing or removed therefrom. All the parts forming the tube proper may therefore be removed from the casing and others substituted therefor, or any part which has become worn or which

for other reason it is desired to replace may be removed and a new part substituted therefor. It will be seen, further, that when the tube is in position in the casing it will be supported throughout its length and in such a way as to be strengthened by the casing, and thus rendered capable of withstanding strains, though itself of such comparatively light material that it would not be capable of withstanding such strains if unsupported.

It is desirable to provide for the relative lateral adjustment of the belt 2 and wrapper *x* as they enter the trough 30. For this purpose a guide-sleeve 70 is provided for the belt near the roller 17, this guide-sleeve being carried by a frame 71, secured to the under side of the casing 25 and adjustable laterally by means of a screw-rod 72, passing through a threaded opening in the frame 71 and carried by ears 75, depending from the casing, said screw-rod being provided with a milled head 74, by which it may be turned and the frame 71 and guide 70 thus caused to move laterally in either direction.

Instead of the screw-rod 72 a sliding rod 75 might be provided, to which the frame 71 is secured and which is mounted to slide through openings in the ears 73, as shown in Figs. 10 and 12. In connection with such rod I preferably provide a pivoted finger 76, adapted to enter any one of a series of openings 77 therein for the purpose of holding it and the frame 71 in the position of lateral adjustment to which they have been moved. The finger 76 may be carried by a rod 78, mounted in the ears 73, and under tension of a spring 79 to move the finger 76 into holding position.

It is sometimes desirable to provide for the adjustment of both the belt and the wrapper, and I have shown a construction for accomplishing this purpose in the main figures. As shown in these figures, a frame 80 is secured to the casing 25 so as to be also laterally adjustable, as by means of a screw-rod 81, passing through a threaded opening in the frame and carried by the ears 73 and having a milled head 82, by which it may be turned. This frame 80 has two ears 83, which engage the guide-roll 17, so that as the frame is moved laterally the guide-roll will be correspondingly moved. The frame 80 also preferably carries a guide 84, through which the wrapper passes before reaching the guide-roll 17.

It will be noticed, further, that my construction of tube, as shown in the drawings, permits an endless feeding-belt 2 to be threaded through the tube, thus avoiding the necessity of joining the ends of the belt after it has been passed through the tube. Considerable difficulty has heretofore been experienced in the use of metal tubes of the general form of that which I have shown, both by reason of the trouble and expense involved in afterward joining the ends of the belt and on account of the bunch in the belt caused by the overlapping of the ends when joined in the customary manner.

The bridge or throat-piece 16 is supported and positioned at one end by means of laterally-extending pins 90, which enter slots 91, formed in the sides of the casing 25 near the entrance end of the trough-like portion 30 of the tube, and its other end rests on the bottom feeding-belt 12, as shown in Figs. 1 and 2, and it is held in position and partly supported by means of spring-arms 92.

It will be understood that I am not to be limited to the exact construction and arrangement of parts as shown in the drawings, but that the invention includes modifications and changes therein within the claims.

What is claimed is—

1. A cigarette-wrapping tube comprising a supporting-casing having a removable part 55, and a tube proper having a removable sealing and pressing flange 50 carried by the part 55, substantially as described.

2. A cigarette-wrapping tube comprising a tube proper having a removable sealing and pressing flange 50, and a supporting-casing therefor having means for securing said flange 50, substantially as described.

3. A cigarette-wrapping tube comprising a supporting-casing; and a tube proper having a trough-like entrance portion B, a compressing portion C formed of a tapering trough 35 and a compressing-tongue 36, and a wrapping and sealing portion D formed of a trough 45 having flanges 46, 47 and 50, said tube proper being secured in the casing by means including a removable part 60 of the casing which bears on the flange 46, substantially as described.

4. A cigarette-wrapping tube comprising the tube proper, and a supporting-casing in which the tube proper is removably secured, said casing having a movable clamping-section 60 forming a portion of one side of the casing, substantially as described.

5. A cigarette-wrapping tube comprising a tube proper having a wrapper-folding flange 46, and a supporting-casing in which the tube proper is removably secured, said casing having a movable clamping-section 60 provided with an inwardly-extending flange 61 adapted to bear on the flange 46 of the tube, substantially as described.

6. A cigarette-wrapping tube comprising a tube proper having a wrapper-folding flange 46, and a supporting-casing in which the tube proper is removably secured, said casing having a movable clamping-section 60 forming a portion of one side of the casing and provided with an inwardly-extending flange 61 adapted to bear on the flange 46 of the tube, substantially as described.

7. A cigarette-wrapping tube comprising the tube proper, a supporting-casing therefor, a stationary guide about which the wrapper-strip and the wrapping-belt turn to the entrance portion of the tube, a guide for guid-

ing the wrapper-strip as it passes to the first said guide, a belt-guide 70, and means for adjusting the guide 70 laterally, substantially as described.

8. The combination with a cigarette-wrapping tube of a stationary guide about which the wrapper-strip and the wrapping-belt turn to the entrance portion of the wrapping-tube, a guide for guiding the wrapper-strip as it passes to the first said guide, a belt-guide 70, and means for adjusting the guide 70 laterally, substantially as described.

9. The combination with feeding devices for advancing a continuous tobacco rod, and a cigarette-wrapping tube, of a bridge for supporting the tobacco rod as it passes from the feeding devices to the wrapping-tube having one end supported and positioned by means of lateral extensions which enter slots formed in the wrapping-tube, substantially as described.

10. The combination with feeding devices for advancing a continuous tobacco rod, and a cigarette-wrapping tube, of a bridge for supporting the tobacco rod as it passes from the feeding devices to the wrapping-tube, and spring positioning-arms 92 engaging said bridge, substantially as described.

11. The combination with feeding devices for advancing a continuous tobacco rod including a bottom feeding-belt, and a cigarette-wrapping tube comprising the tube proper and a supporting-casing therefor, of a bridge for supporting the tobacco rod as it passes from the feeding devices to the wrapping-tube having one end resting on the bottom feeding-belt and the other supported and positioned by lateral extensions entering slots formed in the sides of the casing, and spring positioning-arms 92 engaging the bridge, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CASPAR SIMON.

Witnesses:
A. L. KENT,
A. A. V. BOURKE.