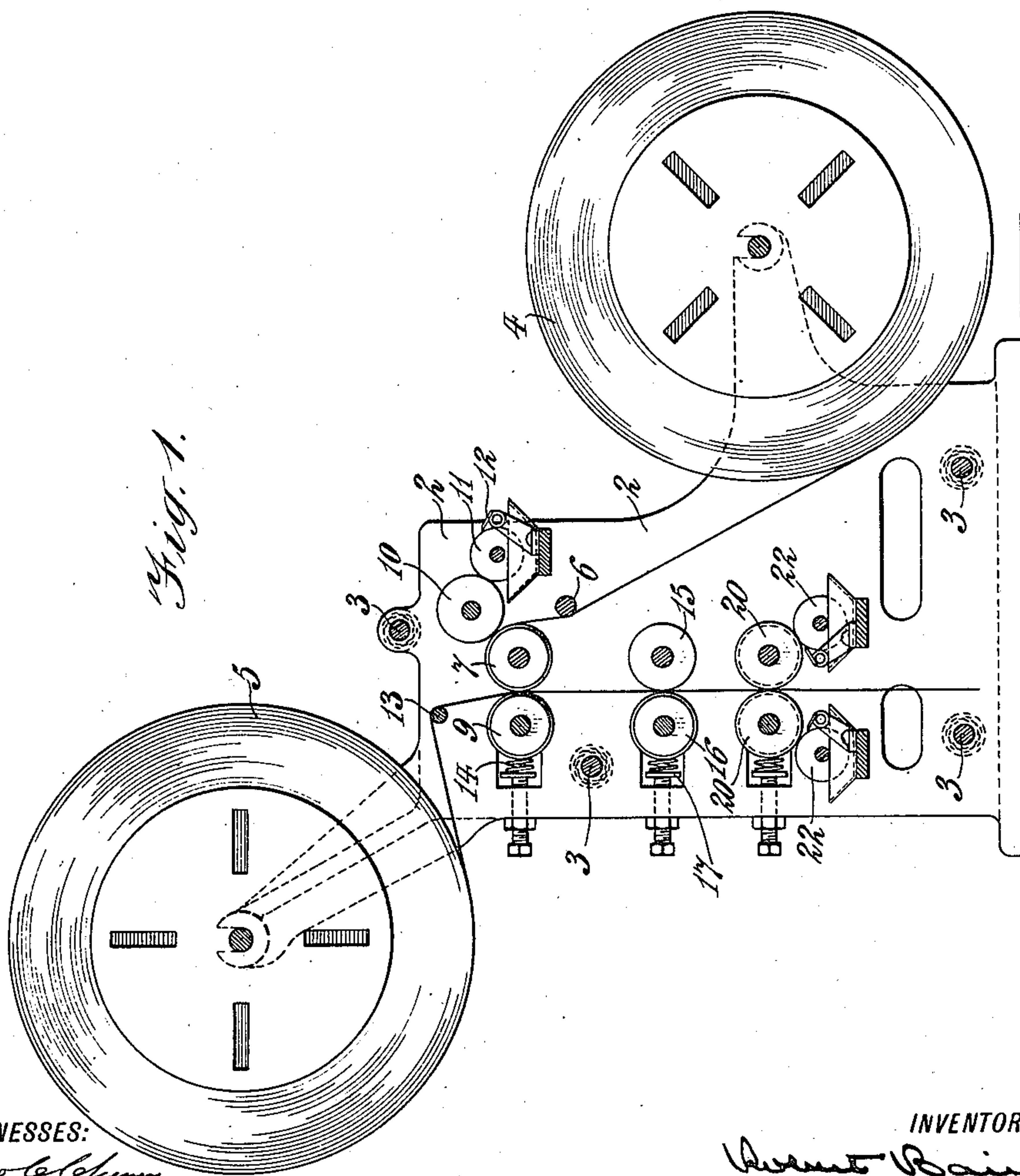
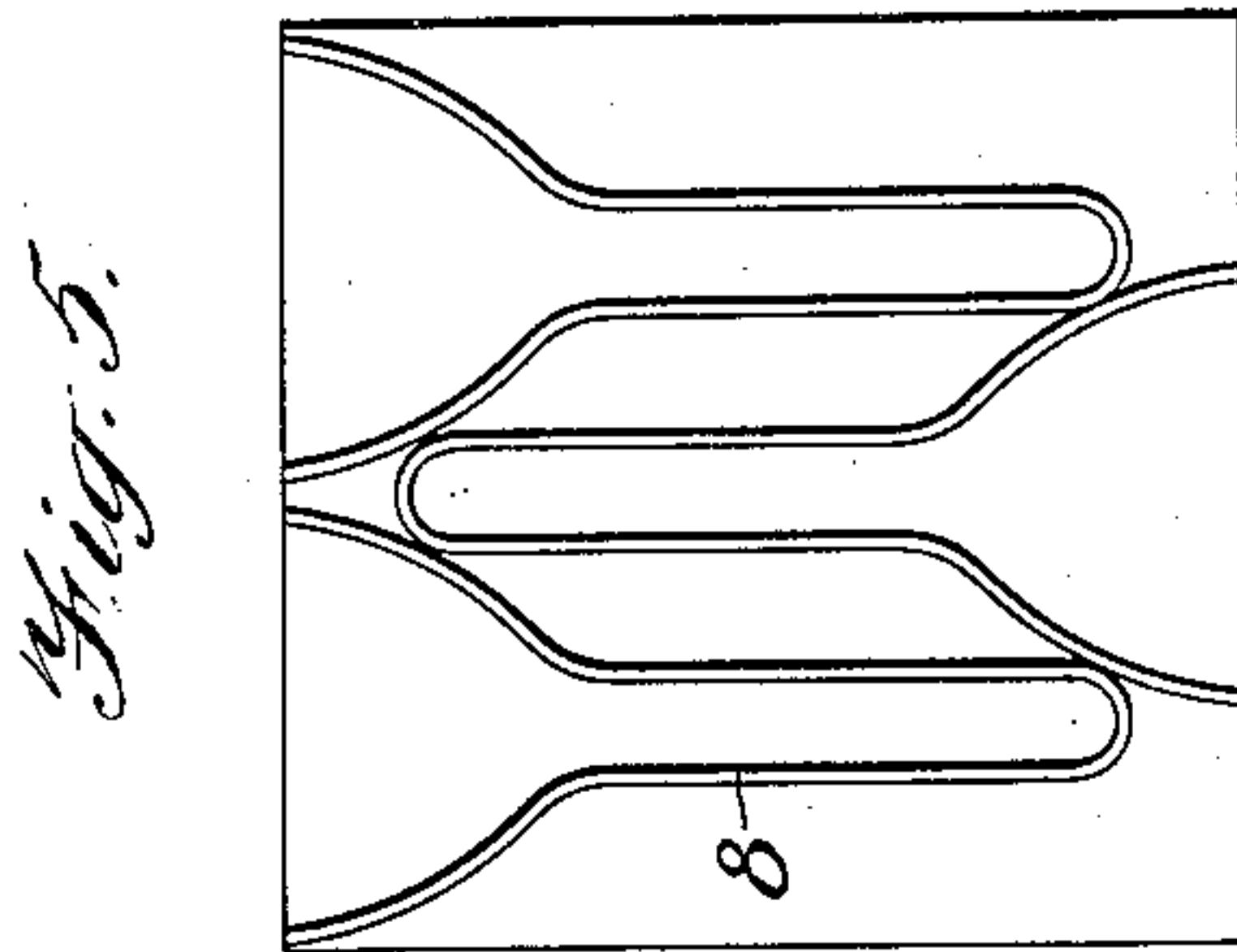
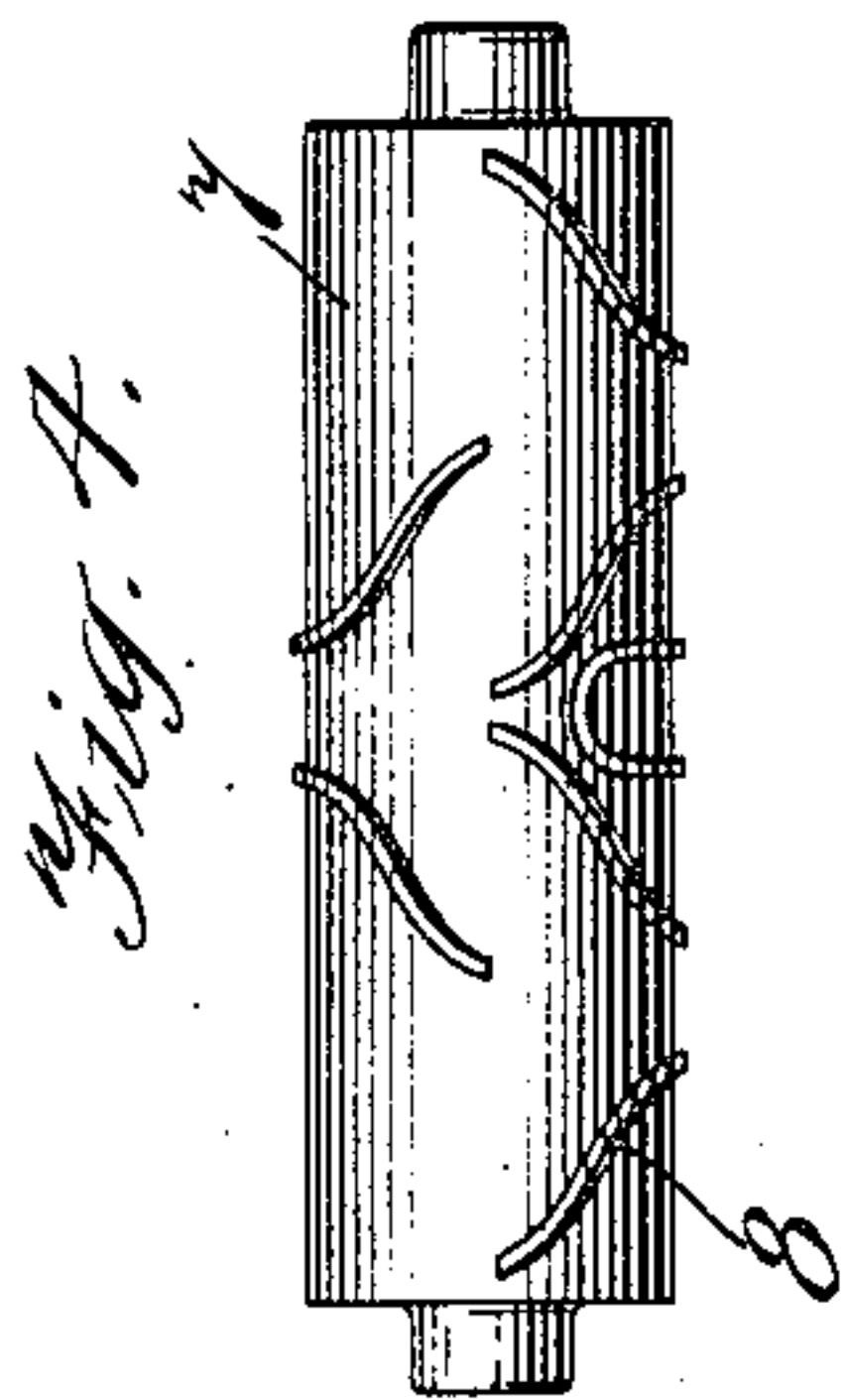


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2 SHEETS—SHEET 1.



WITNESSES:

*J. E. McKibbin*

INVENTOR

*R. Baird*

BY

*Chas. E. Wane*

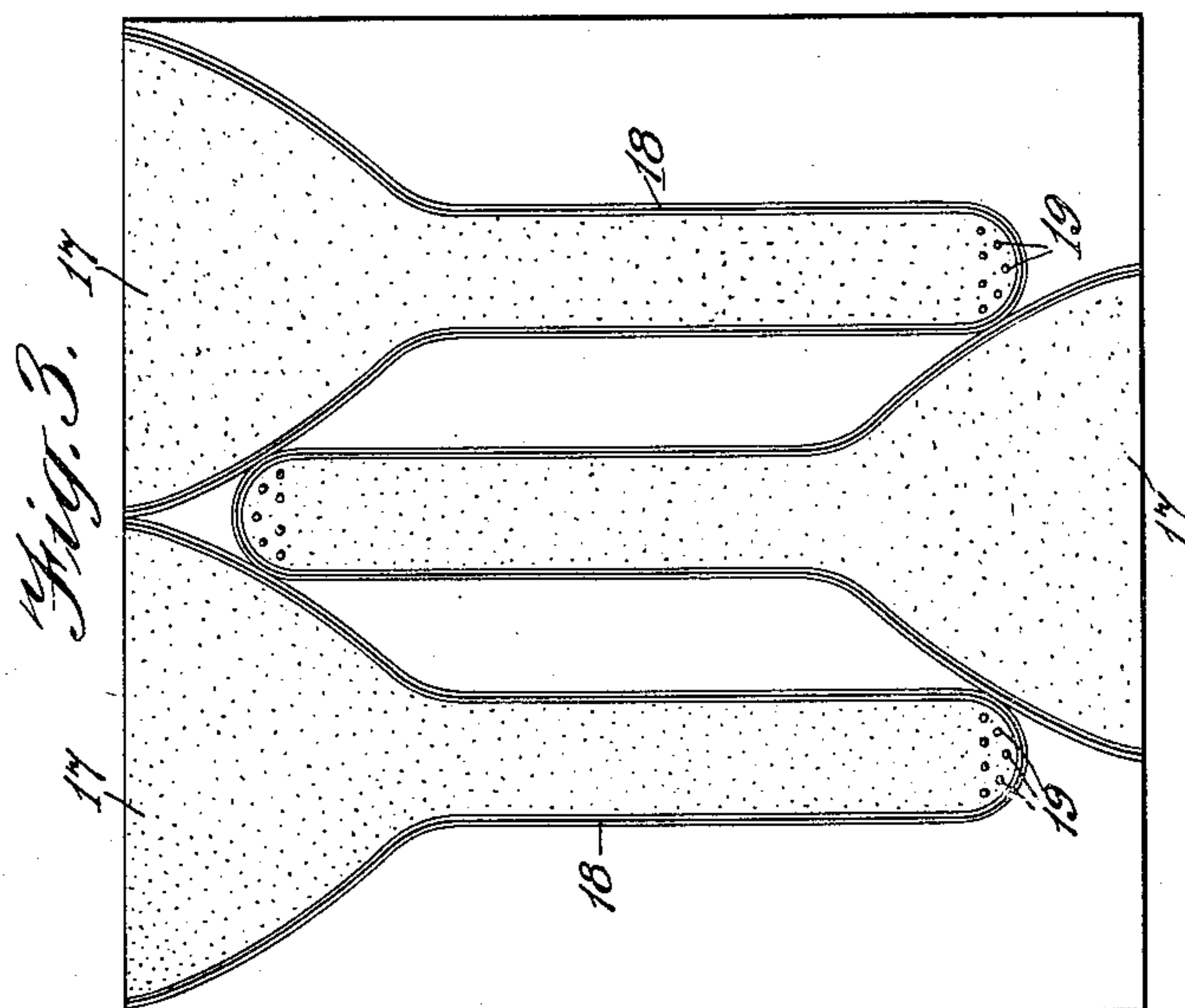
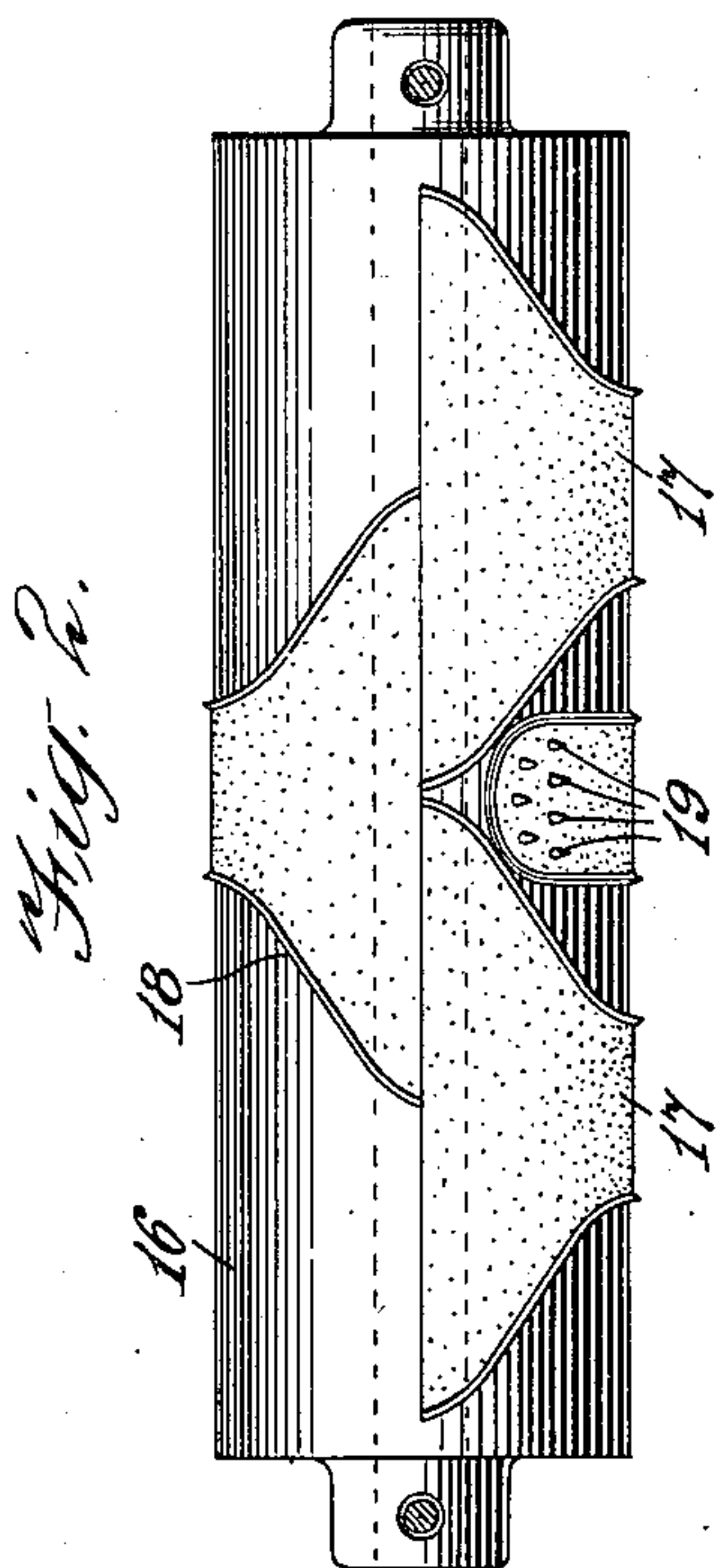
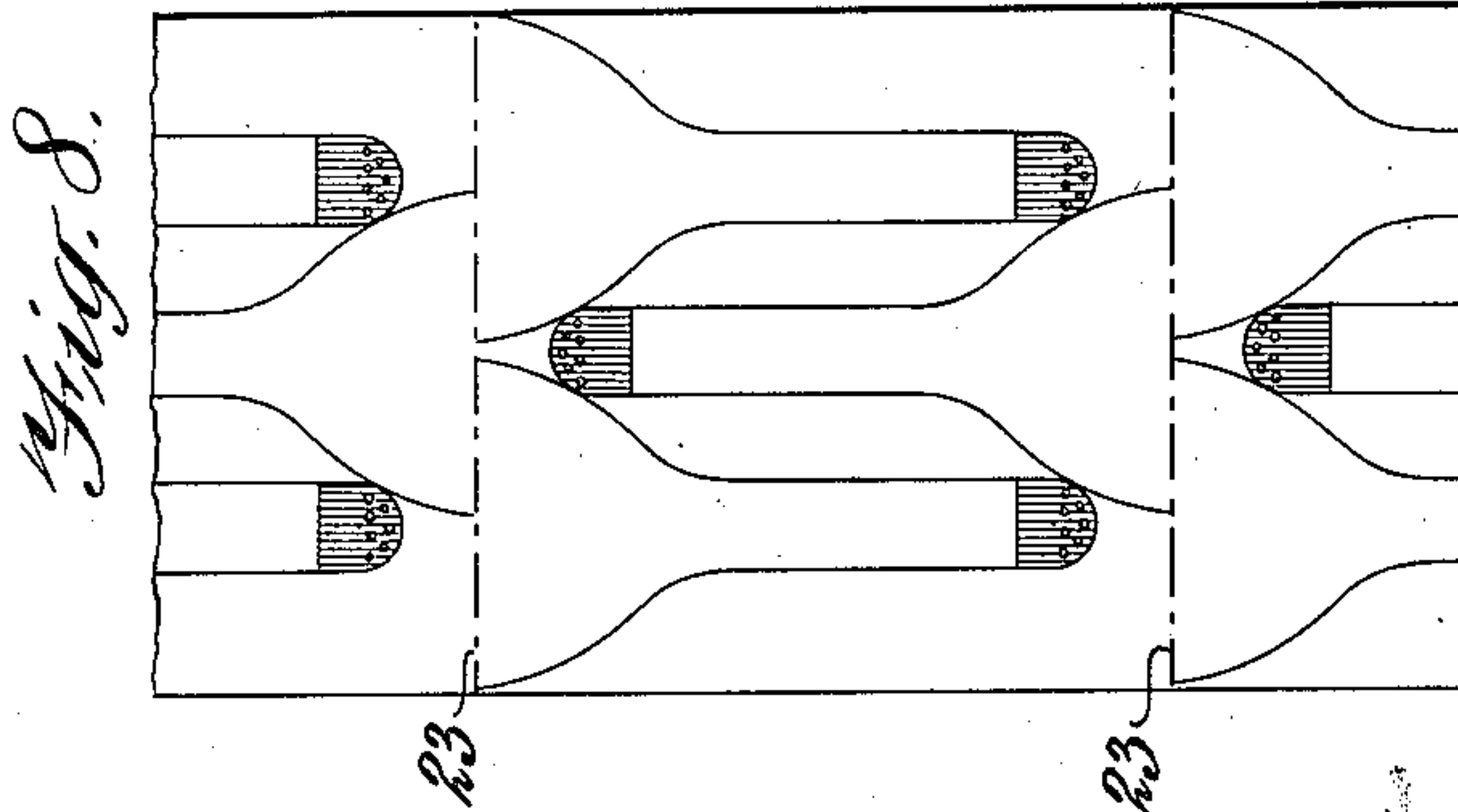
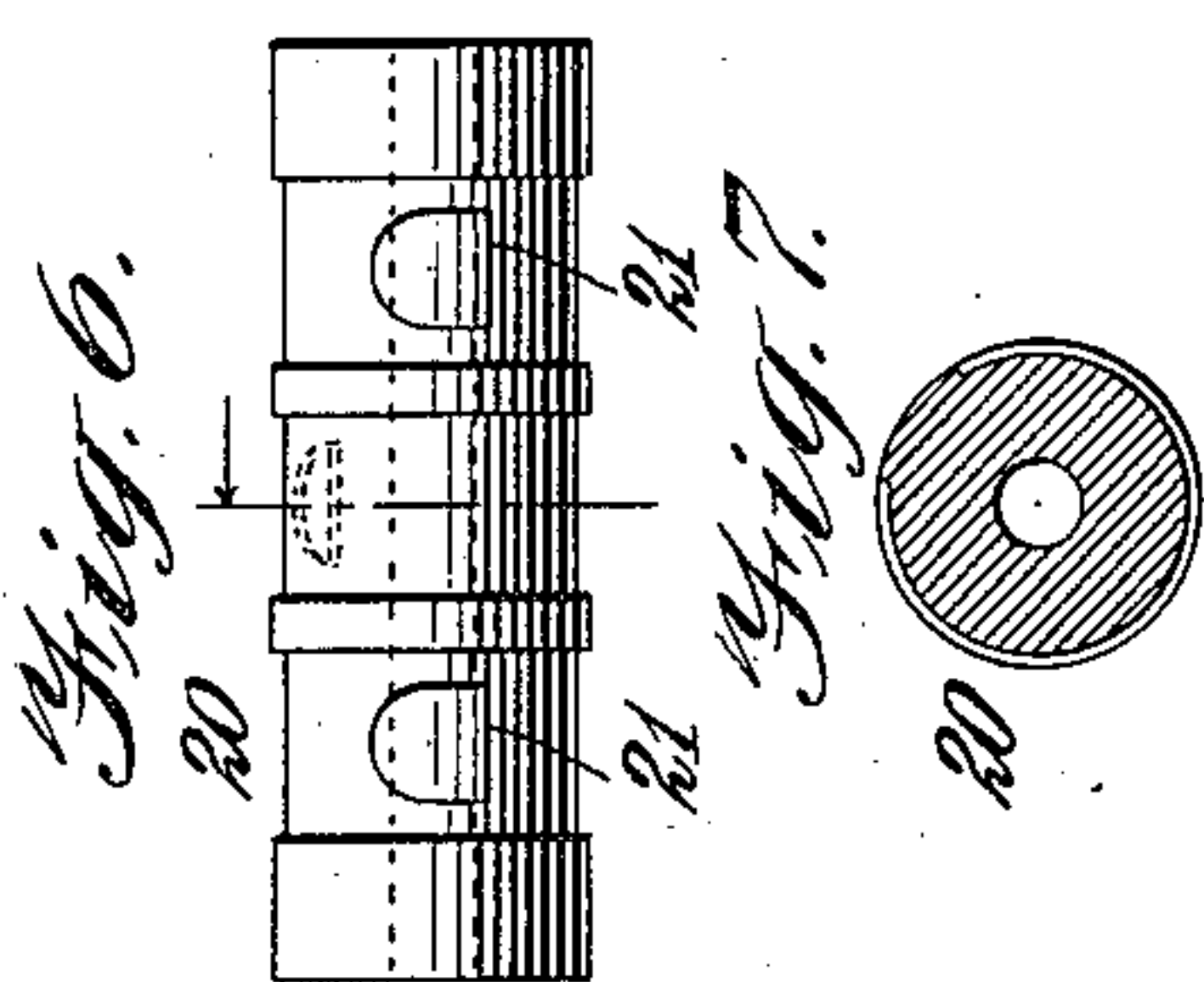
ATTORNEY

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2 SHEETS—SHEET 2.



WITNESSES:  
*Geo. C. Cheney*  
*J. C. McKittin*

INVENTOR  
*Russell Baird*  
BY  
*Chas. F. Dane*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

ROBERT BAIRD, OF WEST ORANGE, NEW JERSEY.

MACHINE FOR FORMING CIGARETTE-WRAPPERS.

953,503.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed October 6, 1909. Serial No. 521,408.

*To all whom it may concern:*

Be it known that I, ROBERT BAIRD, a subject of the King of Great Britain, and resident of West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Forming Cigarette-Wrappers, of which the following is a specification.

The present invention relates to machines for forming cigarette wrappers, and particularly for forming two-ply wrappers in the shape of open-mouthed flaring bags or receptacles into which the tobacco may be conveniently filled and the completed cigarette expeditiously made without the necessity of first rolling and then moistening the edge of a single-blank wrapper as is now the usual custom.

Generally stated, the machine embodies mechanisms for handling two webs of paper; applying an adhesive along predetermined lines on one of said webs; bringing the webs into position so that the sheets will adhere along the lines of the adhesive; cutting the web into a plurality of two-ply wrappers; applying mouth-piece material to the previously formed wrapper to provide a non-sticking tip for the smoker; and finally delivering the wrappers in sheet form; after which they may be separated into individual units, and all with a minimum waste of stock.

Referring to the drawings forming part of this specification, and in which I have illustrated one embodiment of my invention, Figure 1 is a side elevation, partly in section, of a machine constructed in accordance with my invention. Fig. 2 is an enlarged detail view of the web cutting roll. Fig. 3 is a development of the circumferential surface of the roll shown in Fig. 2. Fig. 4 is an enlarged detail view of the adhesive applying roll. Fig. 5 is a development of the circumferential surface of the roll shown in Fig. 4. Fig. 6 is a view in side elevation of the mouth-piece forming roll. Fig. 7 is a transverse sectional view on the dotted line, Fig. 6, looking in the direction of the arrow. Fig. 8 is a diagrammatic view of a portion of the web, showing the wrappers after they have been formed on the web and prior to their separation therefrom.

Referring to the drawings by numerals, like numbers indicating like parts of the

several views, 2 denotes one of the side frames of the machine, of which there are two duplicates, which may be mounted upon any suitable base, and tied together in any suitable manner, as, for example, by transverse tie-rods 3.

Mounted in suitable bearings on the side frames, are rolls of cigarette paper, the roll 4 being preferably mounted, as shown, in suitable supporting arms at one side of the machine, while the roll 5 is mounted on the other side in upwardly extending supporting arms, this arrangement being for the sake of close assemblage and convenience in handling the webs delivered from the respective rolls 4 and 5, although it will be understood that the manner of mounting such supply rolls is immaterial, and that they may be placed in any convenient or desirable position for feeding the web into the machine.

The web of paper from the roll 4 (see Fig. 1), passes over a drag or tension bar 6 which insures proper feed of the web, and thence to a positively driven roll 7, which is shown in detail in Figs. 4 and 5, and is preferably the drive roll of the train of mechanism, this positively driven roll having formed thereon ribs 8, which, as shown in the surface projection of the roller illustrated in Fig. 5, are of the form and outline of the complete article or wrapper, the form of the ribs 8 in the present instance being that of flaring U-shape, to produce a bag-like receptacle having an enlarged filling mouth or orifice, and it will be observed that for economy of space these U-shaped ribs 8 are placed in reversed relation to one another transversely of the web. Opposed to this roll 7 and geared therewith so as to bear a proper timed relation thereto, is a second roll 9, the surface of which has the same ribbed conformation as the roll 7, so that, as the two rolls 7 and 9 rotate, the opposing ribs will register and press against one another.

The web from the roll 4, as it passes over the ribbed roll 7, is pressed against the ribs 8 on such roller by an adhesive applying roll 10 which receives a suitable adhesive from a pot roll 11 rotating in a suitable pot, as shown in Fig. 1, said roll 11 being provided with the usual scraper or laying blade 12, in order to regulate the take-up of the adhesive from the pot. The roller 10 will, it is obvious, apply lines of adhesive to the web coming from the roll 4 at the points



where the ribs 8 on the roller 7 make contact with the roll 10 and the web will thus be striped with adhesive along these predetermined lines. From the web roll 5 the second web of cigarette paper passes over a drag or tension bar 13 to the roll 9 and is pressed against the adhesive striped web from the roll 4 between the hereinbefore described rollers 9 and 7, a suitable pressure medium 14 being provided to give a yielding pressure to the roll 9 against the roll 7. The result of this manipulation of the webs causes them to adhere along the lines of the ribs 8, as will be apparent, and from these pressure rolls the two-ply sheet passes to a second pair of rolls 15 and 16, one of which is provided with a pressure element 17 in order that they may bear against each other with a yielding pressure. The roll 15 constitutes a bed roll, while the roller 16, shown in detail in Figs. 2 and 3, is provided with cutting blades 18 of the same form and outline as the pressure ribs 8 heretofore described, and the bed roll 15 and cutting roll 16 are so timed and geared with relation to the pressure rolls as that they will cut the two-ply web along the lines of adhesion between the two sheets thereof. The cutting roll 16 is also provided with perforating points 19 so positioned as to perforate the mouth tip of the double walled wrapper, as clearly shown in Fig. 8, so that not only will the wrapper or receptacle which is formed from the two-ply web be a convenient one for receiving the tobacco but this mouth piece or tip will also provide a tip closed against the escape of tobacco but open to the egress of smoke.

It will be observed that the succeeding sections of the two-ply web are cut by the rollers just described only along substantially longitudinal lines, and that the web is intact transversely, so that it will continue to feed and run through the machine, as will be apparent from Fig. 8 of the drawings. After leaving the cutting rolls 15 and 16 just described, the two-ply cut web passes to the mouth-piece forming rolls 20, which are identical so far as surface configuration is concerned, and which, as shown in Figs. 6 and 7, have radial projections 21 of suitable form, which projections bear against pot rolls 22 mounted in suitable pots and provided with the usual scraper blades to regulate the deposit on their surfaces. In the present instance this mouth-piece forming mechanism is shown as designed to apply a mouth-piece of paraffin or similar non-adhesive material to the tip of the wrapper; this mouth-piece section being indicated by shaded lines in Fig. 8, and this is accomplished by so timing the rolls 20, which are geared up with the preceding mechanisms so as to rotate in proper relation thereto, as that the projections 21 will register on

either side with the tip portion of the wrappers, which, as already explained, have been severed from the web longitudinally. The last mentioned mechanism will impregnate the wrapper tips or cover them with suitable mouth-piece material so that a non-sticking tip is provided. From the mouth-tip mechanism the web passes out of the machine and the two-ply cut wrappers may then be completed by severing the web transversely at suitable points, as along the dotted lines 23 of the sheet, (see Fig. 8).

It will be seen that by means of this machine two-ply bag-like wrappers may be rapidly and accurately produced, the several mechanisms, as will be obvious from Fig. 1, being so intergeared and disposed that they are timed and correlated so as to complete the chain of operations necessary to the production of the wrapper very expeditiously.

While I have shown a particular embodiment of my invention, and that the best now known to me, it will be obvious that many changes may be made within the skill of the mechanic without departing from my invention, and as all such mechanical departures are obviously within the purview of my invention, I do not limit myself to any of the details of construction herein illustrated for the purpose of disclosing the invention, except so far as I may be limited by the prior art to which this invention belongs.

I claim:

1. In a machine of the class described and in combination, a web supply, adhesive-applying instrumentalities acting on a web surface along predetermined lines, means for pressing a second web section against said adherent web surface, means for cutting said two-ply product along the lines of adhesion, and means for applying mouth-piece material to a predetermined portion of said severed parts.

2. In a machine of the class described and in combination, web supplying instrumentalities, means for applying adhesive to the proximate surface of one of said webs along predetermined lines, means for cutting said two-ply product along the lines of adhesion, means for perforating the two-ply product at a predetermined point, and means for applying mouth-piece material to said perforated portion.

3. In a machine of the class described and in combination, web supplying instrumentalities, means for applying adhesive to the surface of one of said webs along predetermined lines, pressure rolls acting upon the opposed webs along said adherent lines, a cutting and perforating roll adapted to cut said web along the lines of adhesion and perforate the severed two-ply product at a predetermined point, and mouth-piece applying



rolls adapted to apply mouth-piece material to the said perforated portion of the severed product.

4. In a machine of the class described and in combination, a suitable supporting frame, web supplying rolls mounted thereon, an adhesive applying roll acting upon one of said webs along predetermined lines, pressure rolls having ribbed faces which act upon the two webs along the adherent lines of the coated web, a cutting and perforating roll which severs the two-ply product along the lines of adhesion and perforates a predetermined portion thereof, and impregnating rolls which saturate said perforated portion with a non-adherent material.

5. In a machine of the class described and in combination, a suitable supporting frame, web supplying rolls mounted therein, a pair of spring pressure rolls between which said webs are led in opposed relation, adhesive applying mechanism bearing upon one of said pressure rolls and adapted to apply an adhesive to the face of one of said webs along predetermined lines, a spring-pressed cutting roll to which said two-ply product passes to sever the webs along the lines of adhesion, and means for applying mouth-piece material to said severed portions.

6. In a machine of the class described and in combination, a suitable supporting frame, web supplying rolls mounted thereon, pressure rolls to which said webs are led in opposed relation, said rolls having opposed ribbed surfaces, means for applying an adhesive to the proximate face of one of said webs along the lines of said opposed roll ribs, means for severing said two-ply product along the lines of adhesion and simultaneously perforating a predetermined portion of said severed product, and means for impregnating with a non-adherent material the perforated portions of said product.

7. In a machine of the class described and in combination, a suitable supporting frame, two web supplying rolls mounted thereon, opposed ribbed pressure rolls to which said webs are led in opposed relation, an adhesive applying roll bearing against one of said ribbed pressure rolls, a bed roll, an opposed cutter roll having cutting and perforating projections to sever said two-ply product along the lines of adhesion and simultaneously perforate a predetermined portion thereof, and mouth-piece applying rolls having coinciding projections to apply a non-adherent material to said perforated portion.

8. In a machine of the class described and in combination, adhesive applying and web-pressing instrumentalities, and means for applying mouth-piece material to said web at predetermined segregated portions of said web.

9. In a machine of the class described and in combination, adhesive-applying and web-pressing instrumentalities, and means for perforating said web at predetermined segregated points.

10. In a machine of the class described and in combination, means for securing opposed webs together, means for perforating such two-ply product at predetermined segregated points, and means for applying mouth-piece material to said perforated portions.

11. In a machine of the class described and in combination, web-pressing rolls having opposed ribs bearing against one another, and an adhesive-applying roll in operative relation to one of said web-pressing rolls.

12. In a machine of the class described and in combination, web-supplying rolls, pressure-rolls having flaring-mouthed U-shaped pressure ribs thereon, means for applying an adhesive to one of said webs along the lines of said pressure ribs, a cutting and perforating roll having flaring-mouthed U-shaped cutting ribs and perforating points at the bottom of said cutting ribs, and mouth-piece applying rolls to act upon the perforated tips of said U-shaped web portions.

13. In a machine of the class described and in combination, a web supply, opposed pressure rolls having substantially U-shaped pressure ribs in reversed relation thereon, means for applying an adhesive to a web in advance of said pressure rolls along the lines of rib-pressure, a cutting and perforating roll having cutting ribs of substantially U-shape in reversed relation and perforating points at the bottom of said cutting ribs, and mouth-piece applying rolls having angularly-placed projections to act upon the perforated tips of said U-shaped web portions.

Signed at New York, in the county of New York, and State of New York, this 5th day of October, A. D. 1909.

ROBERT BAIRD.

Witnesses:

CHAS. F. DANE,  
GEO. C. CHENEY.