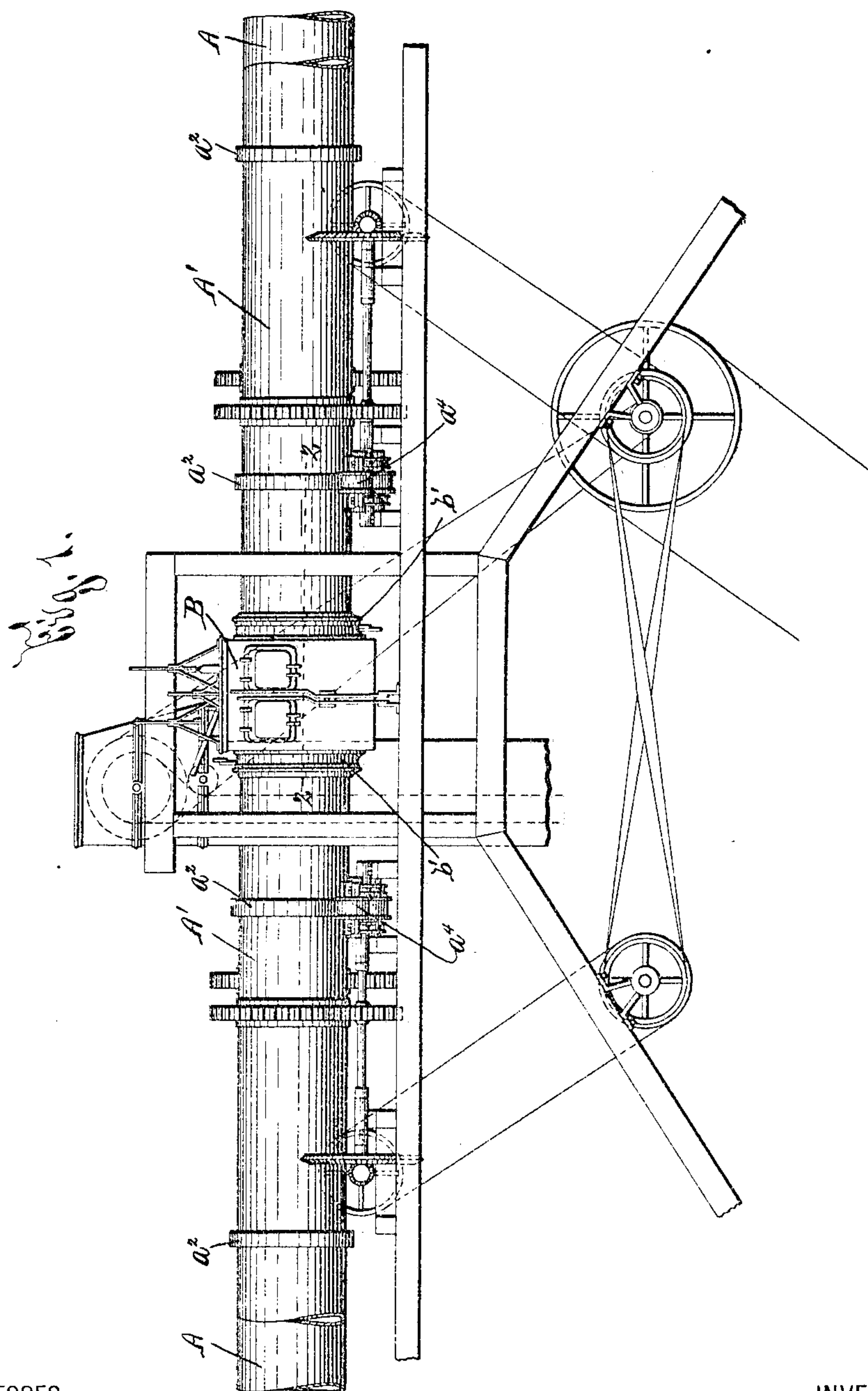


No. 781,575.

PATENTED JAN. 31, 1905.

E. N. TRUMP.
CONVEYING APPARATUS.
APPLICATION FILED MAY 13, 1901.

4 SHEETS—SHEET 1.



WITNESSES:

D. Davis
D. Lavine

INVENTOR

Edward N. Trump

BY

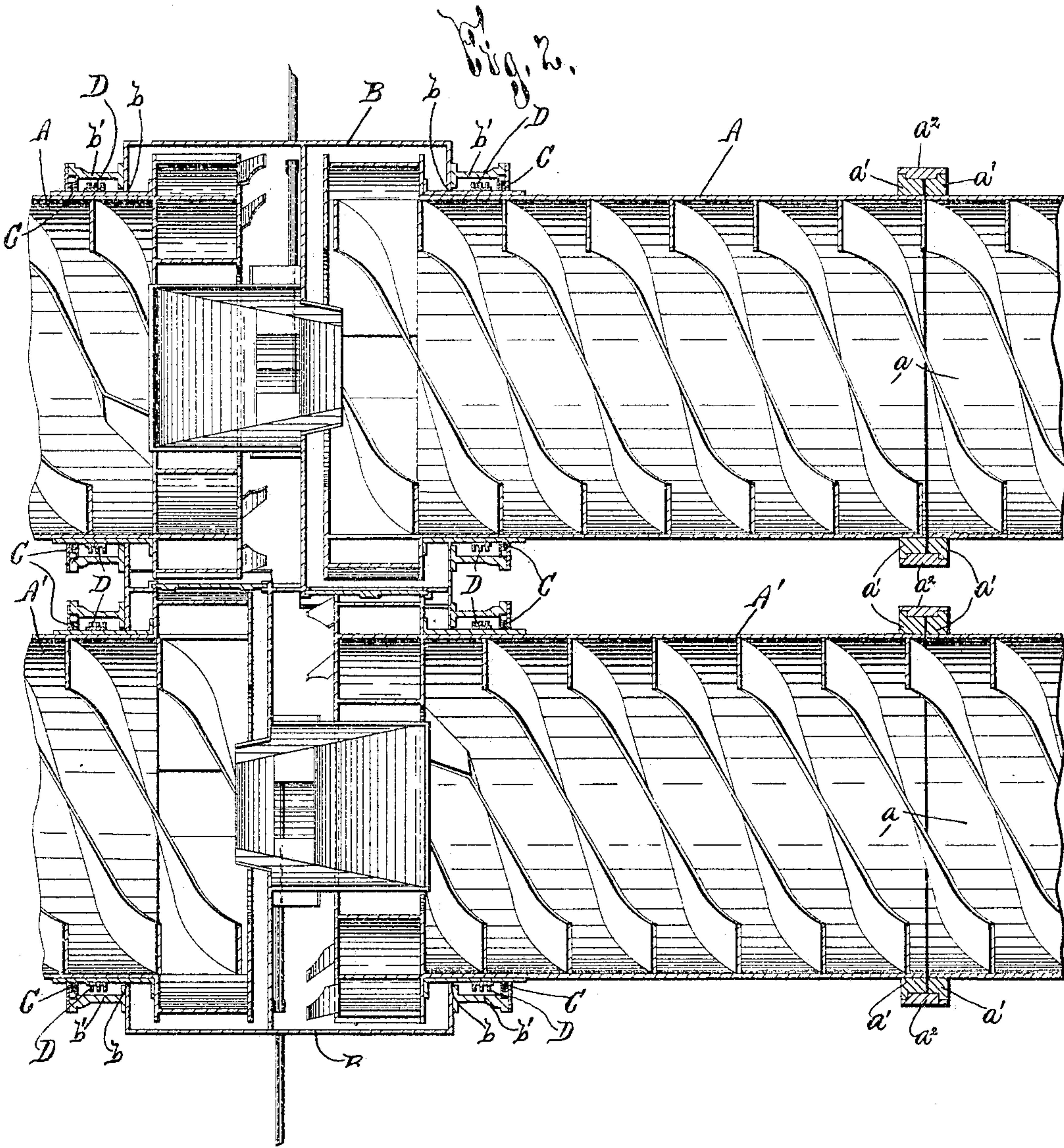
Wm. Parsons
ATTORNEYS

No. 781,575.

PATENTED JAN. 31, 1905.

E. N. TRUMP.
CONVEYING APPARATUS.
APPLICATION FILED MAY 13, 1901.

4 SHEETS—SHEET 2.



WITNESSES:

D. Laine
D. Laine

INVENTOR

Edward N. Trump

BY

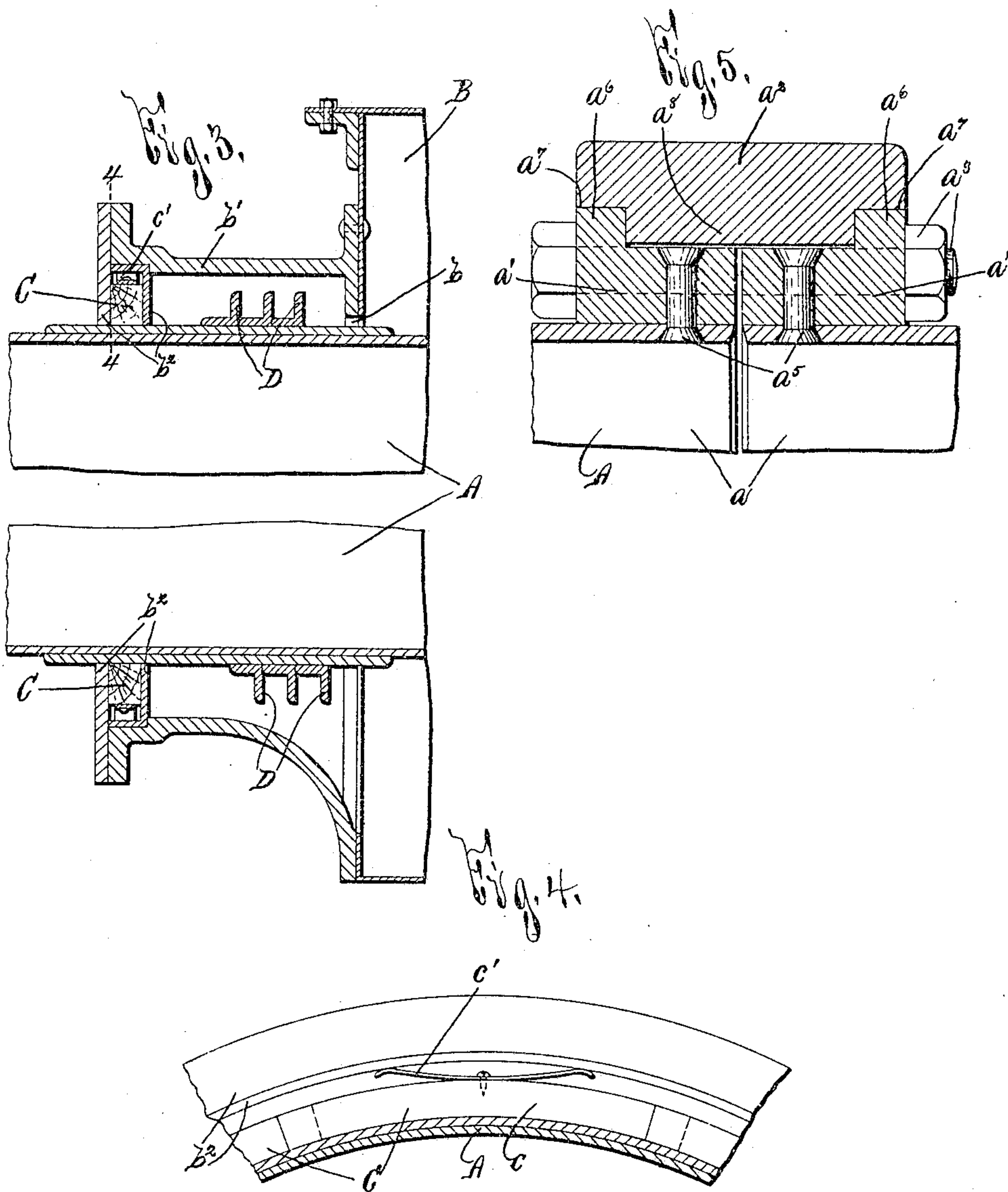
Wm. Parsons
ATTORNEYS

No. 781,575.

PATENTED JAN. 31, 1905.

E. N. TRUMP.
CONVEYING APPARATUS.
APPLICATION FILED MAY 13, 1901.

4 SHEETS—SHEET 3.



WITNESSES:

J. Davis
D. Lamine

INVENTOR

Edward N. Trump

BY

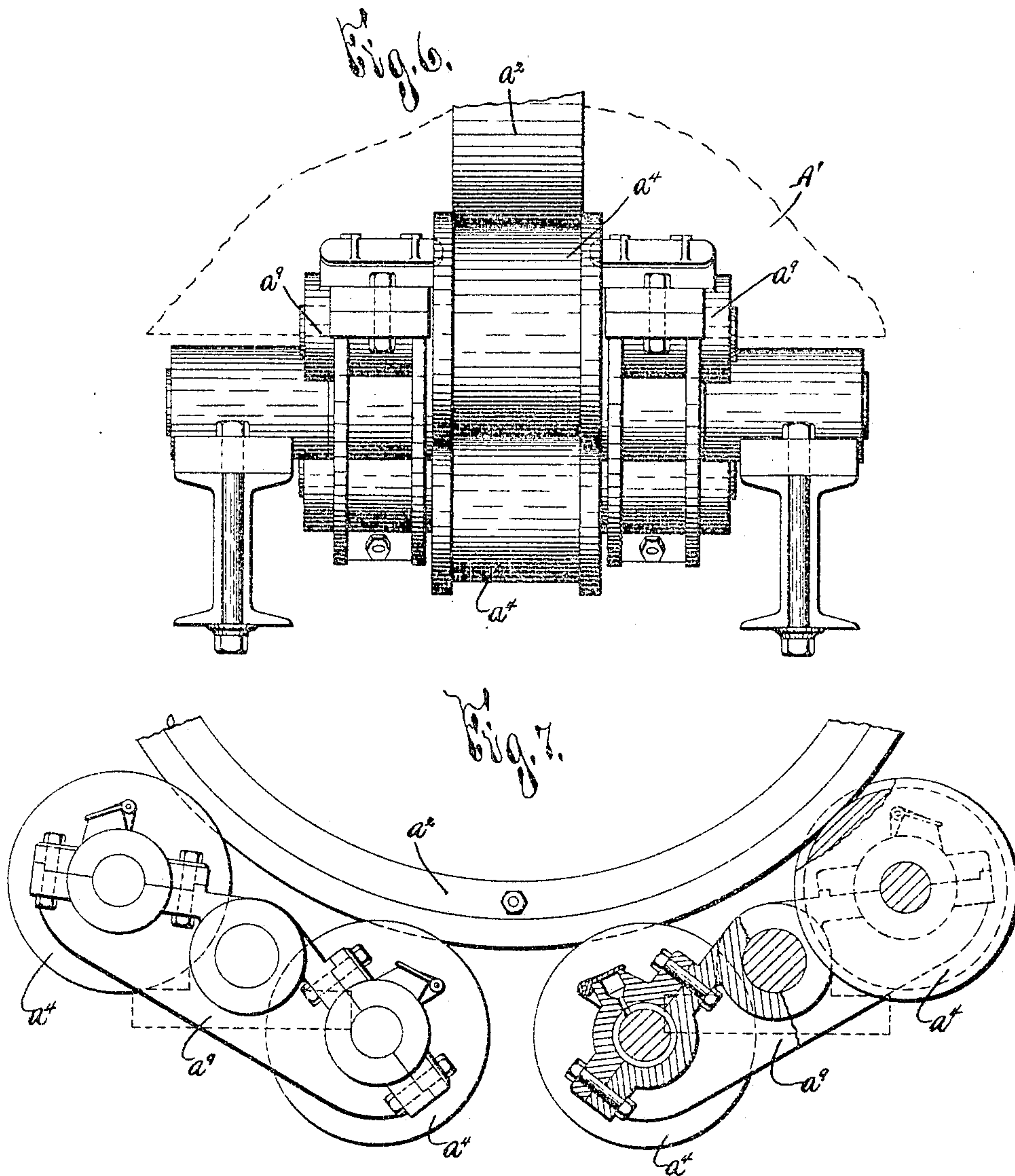
Stuy & Parsons
ATTORNEYS

No. 781,575.

PATENTED JAN. 31, 1905.

E. N. TRUMP.
CONVEYING APPARATUS.
APPLICATION FILED MAY 13, 1901.

4 SHEETS—SHEET 4.



WITNESSES:

D. Davis
D. Laine

INVENTOR

Edward N. Trump

BY

Hay & Parsons
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD N. TRUMP, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE
SOLVAY PROCESS CO., OF SYRACUSE, NEW YORK, A CORPORATION
OF NEW YORK.

CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 781,575, dated January 31, 1905.

Original application filed January 18, 1896, Serial No. 576,031. Divided and this application filed May 13, 1901. Serial No. 60,063.

To all whom it may concern:

Be it known that I, EDWARD N. TRUMP, of Syracuse, in the county of Onondaga, in the State of New York, have invented a certain
5 new and useful Conveying Apparatus, of which the following is a specification.

My invention relates to conveying apparatus having rotary cylindrical elements, as in
10 my Patent No. 674,346, granted May 14, 1901, of the application for which this present case is a division; and to this end it consists, essentially, in the combination, construction, and arrangement of packing-rings and peripheral conveying means for rotary cylindrical ele-
15 ments and means for uniting sections of rotary cylindrical elements and for supporting said elements at the points where said sections are united, as hereinafter fully described, and pointed out in the claims.

20 In describing this invention reference is had to the accompanying drawings, forming part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is an elevation of a portion of my
25 conveying apparatus. Fig. 2 is an enlarged horizontal sectional view taken on line 2 2, Fig. 1. Fig. 3 is an enlarged sectional view, partly broken away, of a portion of the parts shown in Fig. 2, illustrating the packing-ring and the peripheral feeding means for one of
30 the cylindrical elements. Fig. 4 is a sectional view taken on line 4 4, Fig. 3. Fig. 5 is an enlarged sectional view of a portion of the parts seen in Fig. 2, illustrating the means for uniting the sections of one of the cylindrical elements. Fig. 6 is an elevation of one of the antifriction-bearings for the cylindrical elements. Fig. 7 is an edge view of a portion of the parts seen in Fig. 6.

40 A A, A' A', and B are respectively a plurality of rotary cylindrical elements and a casing constructed and operating in the same manner as the rotary conveyer elements A A A' A' and the casings B of my aforesaid patent, No. 674,346. As best seen in Fig. 2, the rotary elements A A are arranged end to end. The rotary elements A' A' are also arranged
45 end to end and substantially parallel with the former rotary elements, and the casing B com-

municates with the elements A A A' A' and con- 50
tains mechanism for transferring the material from one of the rotary elements to another. The opposite side walls of the casing B are provided with openings *b* for receiving the
55 contiguous ends of the rotary elements A A A' A' and with chambers or stuffing-boxes *b'*, which are of less cross-sectional size than the casing B, project outwardly from said walls, and inclose parts of the rotary elements A A A' A'. So far as my present invention is
60 concerned, the rotary elements A A A' A' may be any rotary parts, and consequently I have deemed it unnecessary to describe the means shown in Fig. 1 for actuating said elements
65 and the means shown in Fig. 2 for transferring material from one element to another.

The rotary elements A A A' A' are preferably composed of cylindrical sections *a*, Figs. 2 and 5, arranged end to end and united and supported by the means best seen in Figs. 5, 70
6, and 7, which consists of collars *a'* *a'* *a''*, clamping means *a'''*, and antifriction members *a⁴*. The collars *a'* *a'* are arranged side by side, are secured to contiguous ends of the sections
75 *a* by suitable fastening means, as rivets *a⁵*, and are provided with shoulders or flanges *a⁶*, projecting from the outer ends of their peripheral faces. Said collars *a''* encircle the
80 collars *a'* *a'* and are formed with annular grooves *a⁷* in the outer ends of their inner faces for receiving the shoulders *a⁶* and with projections *a⁸*, arranged between the shoulders
85 *a⁶*. The clamping means *a'''* consists of bolts, which are disconnected from the collar *a''*, are passed through the collars *a'* *a'*, and draw the collars *a''* in position and securing the sections
90 *a* together with a substantially air-tight joint. Said antifriction members *a⁴* are here illustrated as rollers journaled in the opposite ends of rocking frames *a⁹* and formed with peripheral grooves for receiving the collars *a''*.

C D represent, respectively, the packing-rings and peripheral feeding means of my present invention. Said packing-rings C, as
95 best seen in Figs. 2 and 3, are arranged in the outer ends of the chambers or stuffing-boxes *b'* between internal shoulders *b²* of said

chambers or stuffing-boxes and are each composed of arc-shaped sections *c*, formed of wood and having their adjacent ends tapered and lapped upon each other. Each of said sections is provided with a bow-shaped spring *c'*, arranged between contiguous surfaces of the chamber or stuffing-box *b'* and said section for forcing the section independently of the remaining sections of the corresponding packing-ring into close contact with the contiguous part of the cylindrical element encircled by said packing-ring. The peripheral feeding means *D* consists of helical flanges or conveyer-blades encircling the parts of the elements *A A' A'*, arranged within the stuffing-boxes *b'* between the openings *b* and the shoulders *b'*. Said means *D* operates to feed from the packing-rings *C* through the openings *b*, the material tending to pass outwardly from the casing *B* through the chambers or stuffing-boxes *b'*.

The construction and operation of my apparatus will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be apparent that more or less change may be made in the component parts thereof without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a conveying apparatus, the combination with a rotary cylindrical element, and a casing having a portion thereof inclosing said element, of a packing-ring surrounding said element interposed between the same and the inclosing part of said casing, said ring comprising a plurality of arc-shaped sections having overlapping ends, whereby the continuity thereof is maintained in the adjustments of the same, and a spring secured substantially centrally of the periphery of each section, the ends of said springs finding bearings against the contiguous wall of the casing, substantially as described.

2. The combination of a casing for receiving material, said casing being provided with an opening and a rotary cylindrical element having a part thereof passed through the opening, and peripheral means on the cylindrical element for feeding said material from the opening toward the interior of the casing, substantially as and for the purpose set forth.

3. The combination of a casing for receiving material, said casing being provided with a chamber or stuffing-box, and a rotary cylindrical element having a part thereof revolvable within the chamber or stuffing-box, and peripheral means on the cylindrical element and within the chamber or stuffing-box for feeding said material from the chamber or stuffing-box toward the interior of the casing, substantially as described.

4. The combination of a casing provided with an opening, and a rotary cylindrical ele-

ment having a part thereof passed through the opening and provided with a peripheral spiral conveyer-blade for feeding material away from said opening toward the interior of the casing, substantially as and for the purpose described.

5. The combination of a rotary cylindrical element, a casing having a chamber or stuffing-box for receiving a part of the cylindrical element, and a spiral conveyer-blade on the exterior of the cylindrical element within the chamber or stuffing-box for feeding material from the chamber or stuffing-box to the interior of the casing, substantially as and for the purpose specified.

6. The combination of a rotary cylindrical element, and a casing having a chamber or stuffing-box for receiving a part of the cylindrical element; with a packing-ring within the chamber or stuffing-box encircling the cylindrical element; and a spiral conveyer-blade on the exterior of the cylindrical element within the chamber or stuffing-box for feeding material away from said packing-ring toward the interior of the casing, substantially as and for the purpose set forth.

7. The combination of a rotary element composed of sections arranged end to end and formed hollow for permitting the feeding of material therethrough, a collar encircling the sections, and means coöperating with the sections and the collar for forming substantially air-tight joints between contiguous surfaces of the sections and the collar and thereby preventing the escape of the material, substantially as and for the purpose described.

8. The combination of a rotary element composed of sections arranged end to end and formed hollow for permitting the feeding of material therethrough, with collars arranged side by side and fixed to the ends of the sections, an additional collar having a part thereof interposed between opposing surfaces of the former collars, and means disconnected from the additional collar and connected to the former collars for drawing said former collars together and forming substantially air-tight joints between contiguous surfaces of the collars and thereby clamping the additional collar in position and preventing the escape of the material, substantially as and for the purpose specified.

9. The combination of a rotary cylindrical element composed of cylindrical sections arranged end to end, collars arranged side by side and fixed to the ends of the sections and provided with shoulders projecting from the outer ends of their peripheral faces; of an additional collar encircling the former collars and having the outer ends of its inner face formed with annular grooves for receiving said shoulders, and disconnected from the additional collar and passed through the former collars, means for drawing the former collars together and thereby clamping the

additional collar in position and securing said sections together with a substantially air-tight joint, substantially as and for the purpose described.

5 10. The combination of a rotary cylindrical element composed of cylindrical sections arranged end to end, collars arranged side by side and fixed to the ends of the sections and provided with shoulders projecting from their
10 peripheral faces, of an additional collar encircling the former collars and having its inner face formed with annular grooves for receiving said shoulders, means for drawing the former collars together and thereby clamping

the additional collar in position and securing 15 said sections together with a substantially air-tight joint, and antifriction members for supporting said additional collar, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed 20 my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 11th day of May, 1901.

EDWARD N. TRUMP.

Witnesses:

S. DAVIS,
D. LAVINE.