No. 815,988. PATENTED MAR. 27, 1906.

F. VAN AMBER.

MEANS FOR PREVENTING DIFFERENTIAL MOVEMENT OF CLAMPING JAWS.

APPLICATION FILED OCT. 26, 1903.

2 SHEETS—SHEET 1.

Fig. 1.

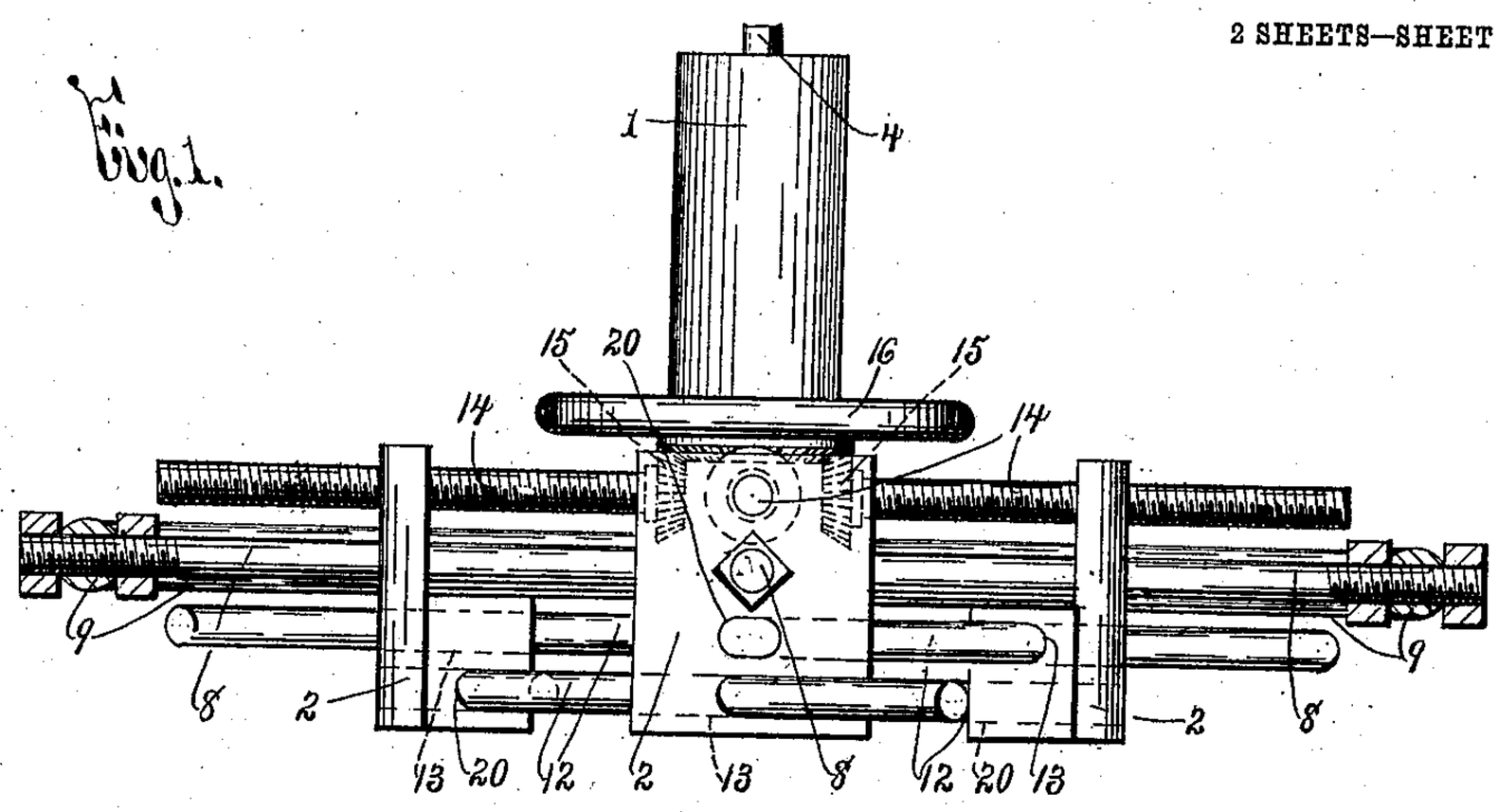
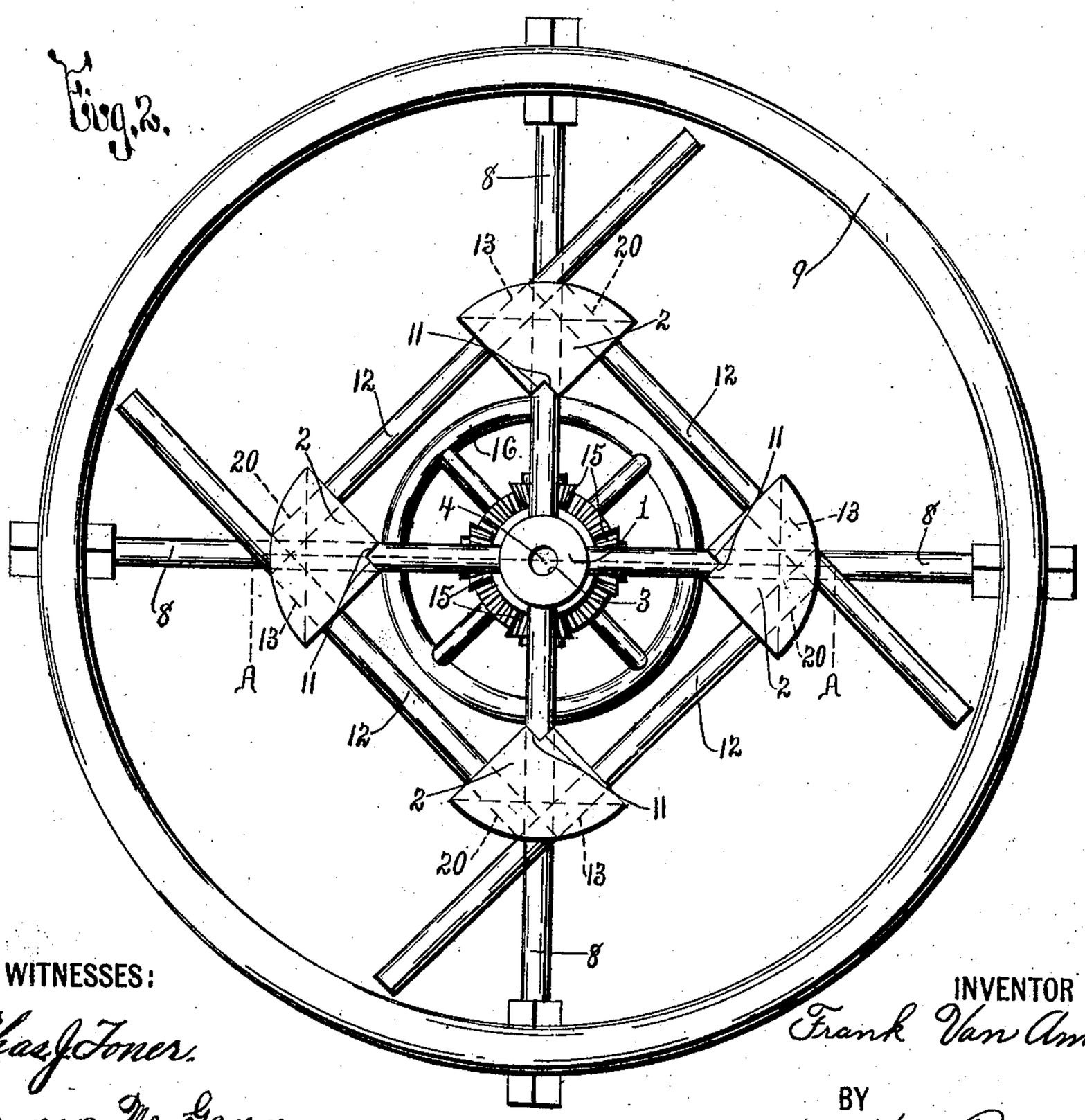


Fig. 2.



WITNESSES:

Chas. J. Jones.

Herman Mc Gann

INVENTOR

Frank Van Amber

BY

Hoyt & Parsons

ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 4.

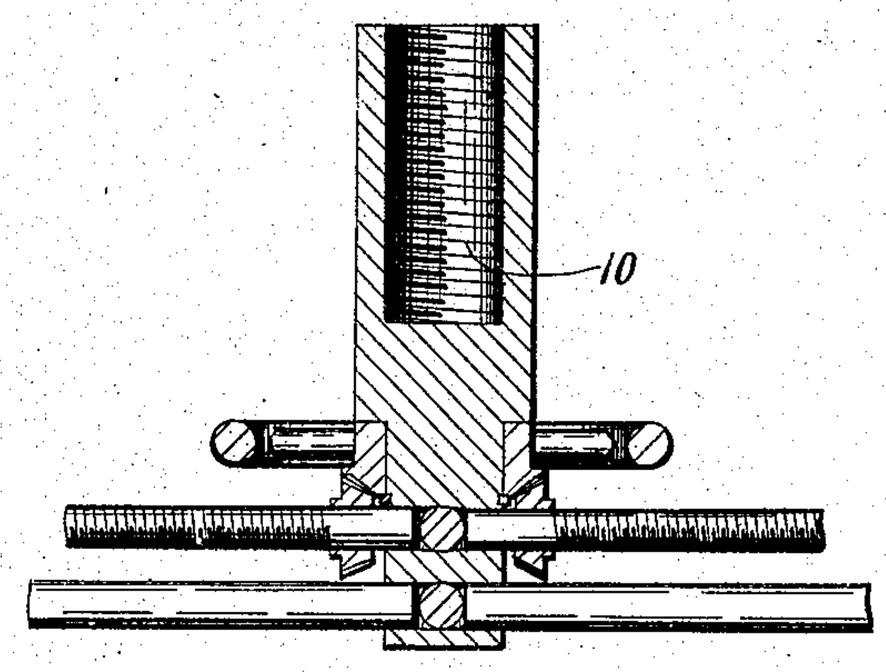
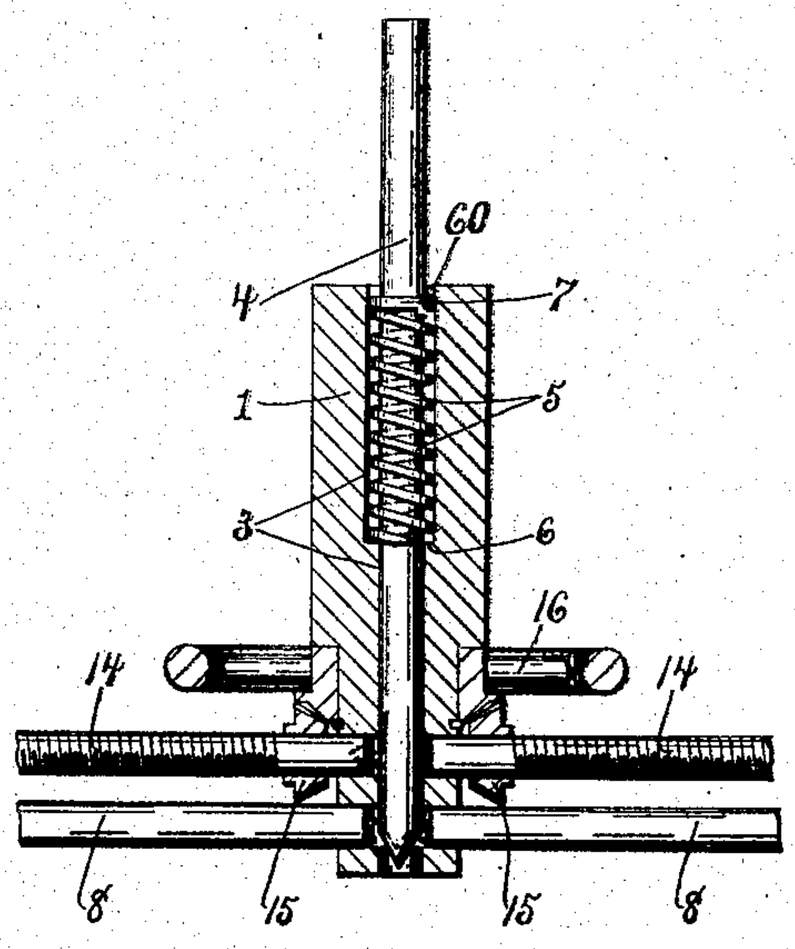


Fig. 3.



WITNESSES:

Chas J. Toner.

Herman McGann.

INVENTOR

Frank Van Amber

BY

Hey & Parsons

ATTORNEYS

UNITED STATES PATENT OFFICE.

FRANK VAN AMBER, OF SYRACUSE, NEW YORK.

MEANS FOR PREVENTING DIFFERENTIAL MOVEMENT OF CLAMPING-JAWS.

No. 815,988. Specification of Letters Patent. Patented March 27, 1906.

Application filed October 26, 1903. Serial No. 178,470.

To all whom it may concern:

Be it known that I, FRANK VAN AMBER, of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Means for Preventing Differential Movement of Clamping-Jaws, of which the following is a specification.

My invention has for its object the production of a device for preventing differential movement of clamping-jaws which is particularly simple in construction and highly efficient and durable in use; and to this end it consists in the novel combinations and constructions hereinafter fully set forth and claimed.

In describing this invention reference is had to the accompanying drawings, in which like characters refer to corresponding parts in all the views.

Figure 1 is an elevation, partly broken away and in section, of a chuck embodying a preferable construction of my device. Fig. 2 is a face view of said chuck. Fig. 3 is a longitudinal sectional view taken on line A A, Fig. 2. Fig. 4 is a similar sectional view of a modified construction of a chuck embodying my device.

The illustrated embodiment of my invention comprises a body 1, clamping members 2, movable toward and away from each other, and means connecting the clamping members for preventing differential movement thereof.

As best seen in Fig. 2, the body 1 is preferably centrally arranged and formed with a central opening 3, which receives a centering-pin 4 for finding and marking the centers of regular objects, as shafts. Said centering-pin is normally held in an inoperative position by a spring 5, interposed between the shoulder 6 of the body 1 and the shoulder 7, provided on the pin 4 between the shoulder 6 and a suitable stop-pin 60, fixed to the body 1. As clearly shown in Fig. 2, the body 1 is generally provided with supports 8, extending radially therefrom and having their outer ends held by a ring 9. Said supports are preferably four in number and are substantially equidistant from each other, and each is disposed at substantially right angles with the next adjacent or contiguous support. The body 1 may be supported by any suitable means (not illustrated) or may be provided with engaging means, as peripheral threads, or, if desired, the opening 3 and the centering-pin 4 may be dispensed with, and said body may then be provided with a threaded socket 10, as shown in Fig. 4, for receiving a threaded mandrel. (Not illustrated.)

The clamping members 2 are of any desirable form, size, and construction, are substantially equidistant from each other, are slidably mounted on the supports 8, and are each provided with angularly-arranged engaging or working faces 11 and with substantially cylindrical openings 13 20, disposed at right angles with each other and at an angle with the path of movement of the clamping members.

The means connecting the clamping members for preventing differential movement thereof preferably consists of elements 12, which are here shown as substantially cylindrical rods arranged at substantially right angles with each other and each disposed at an angle with the contiguous supports 8 and having one end fixed in one of the openings, as 20, of one of the clamping members and its projecting portion slidable in one of the openings, as 13, of the clamping member adjacent to the clamping member fixed to said connecting element. As the clamping members 2 are moved toward and away from the central body 1 the connecting elements or rods 12 act as cams in the openings or guides 13, so that any movement imparted to a given member 2 is directly transmitted, by means of said elements or rods, to the other members 2. Moreover, when the clamping members are operatively engaged with an object the adjustment of said members cannot be varied by vibration of the work, as any strain exerted on one of the clamping members is distributed uniformly to the others, and consequently the object engaged by my chuck is held positively and centrally with a minimum variation in its position.

In the preferable construction of my device the clamping members are moved lengthwise of the supports by revoluble adjusting members or shafts 14, turning in threaded sockets formed in the members 2, each adjusting member or shaft being arranged parallel with one of the supports 8 and provided at its inner end with a bevel-pinion 15, meshing with gear-teeth provided on an adjusting member 16, arranged concentric with the central body 2.

The construction and operation of my invention will now be readily understood upon reference to the foregoing description and

the accompanying drawings, and it will be understood 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—

The combination of clamping members movable toward and from each other, each having an opening parallel to its direction of movement, also each having an additional opening arranged at an angle to the first-mentioned opening, a central body having rods extending radially therefrom and arranged in and slidably fitted to the first-mentioned openings, and rods connecting the clamping members for transmitting the movement of one of said members to the others to prevent differential movement of the members, each rod being fixed to one of the clamping members and arranged in and slidably fitted to the second-mentioned opening of the clamping member adjacent to that to which said rod is fixed, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 12th day of May, 1903.

FRANK VAN AMBER.

Witnesses:
D. LAVINE,
CHAS. TONER.