

No. 747,405.

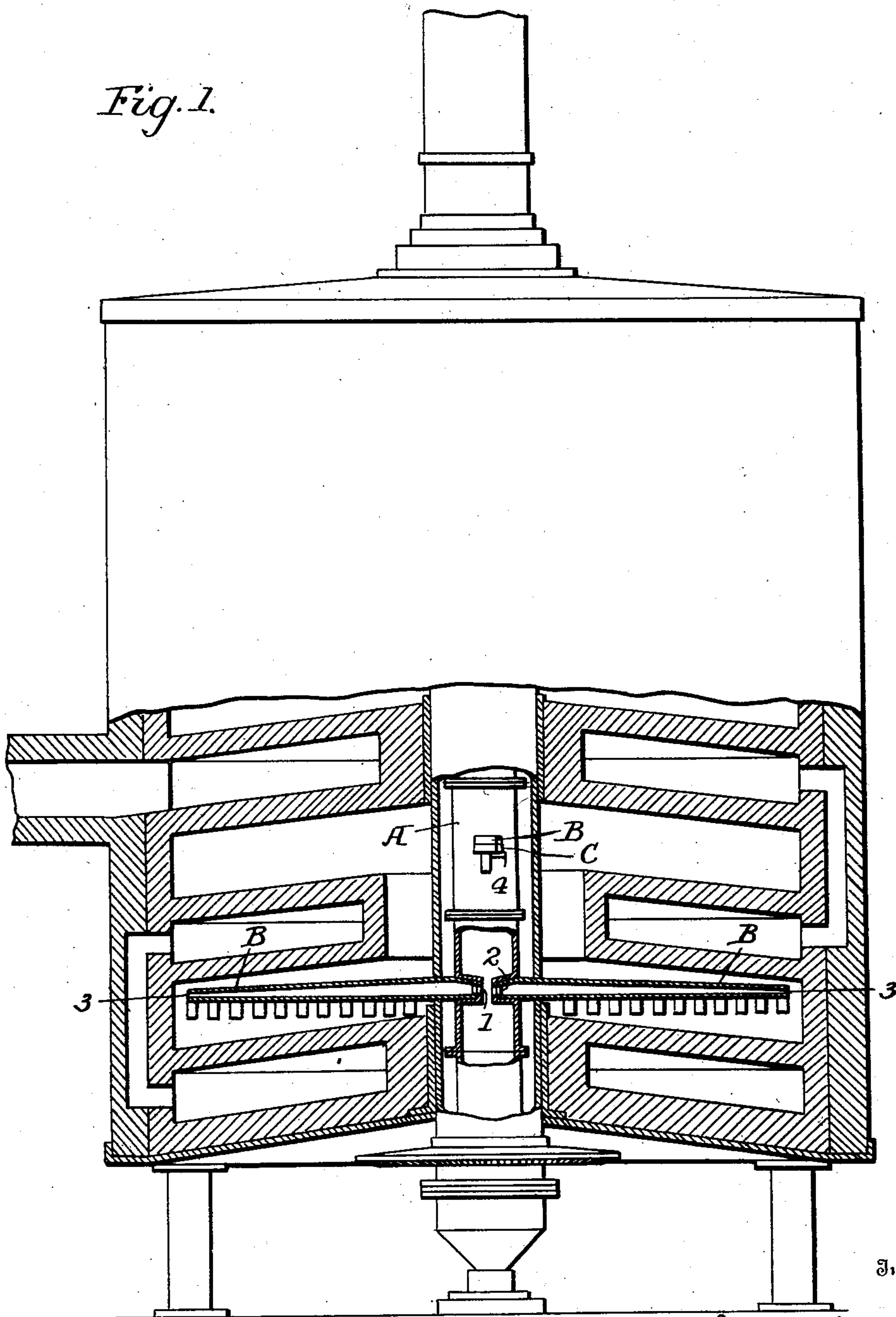
PATENTED DEC. 22, 1903.

S. FRAZIER.  
CONNECTING DEVICE FOR SHAFTS AND ARMS.

APPLICATION FILED APR. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Inventor

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

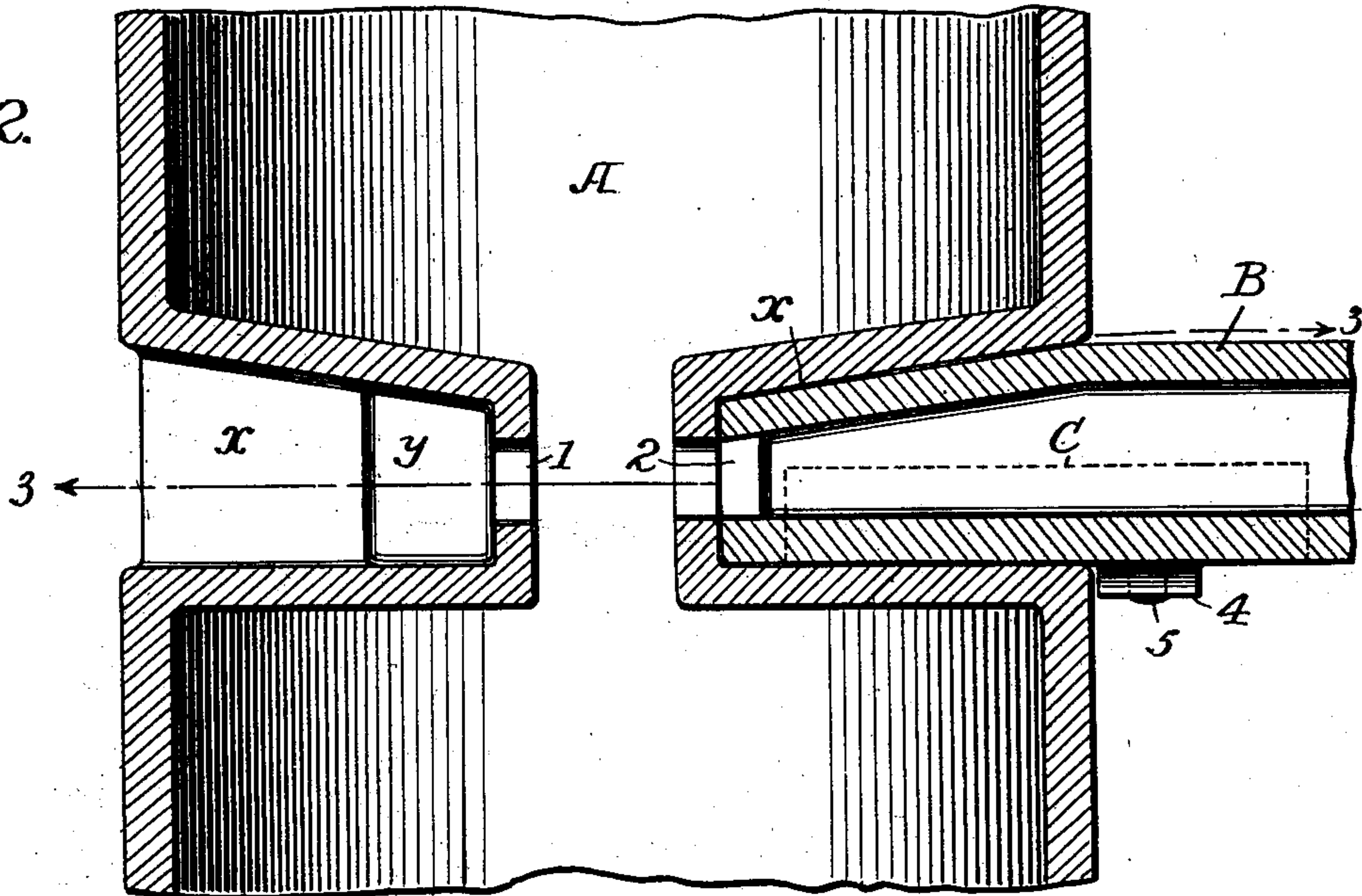
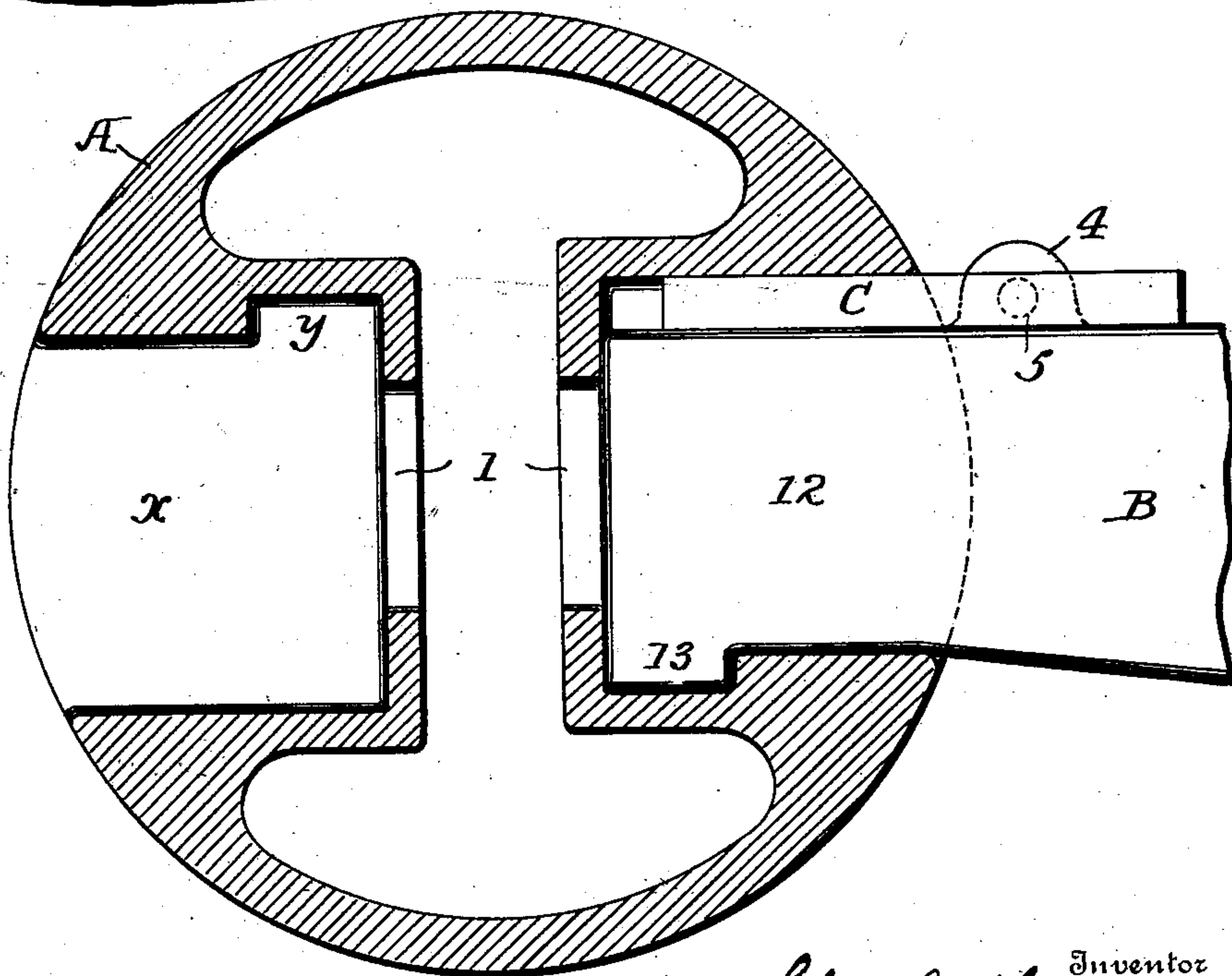


Fig. 3.



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# UNITED STATES PATENT OFFICE.

SCHUYLER FRAZIER, OF ARGENTINE, KANSAS.

## CONNECTING DEVICE FOR SHAFTS AND ARMS.

SPECIFICATION forming part of Letters Patent No. 747,405, dated December 22, 1903.

Application filed April 21, 1903. Serial No. 153,701. (No model.)

*To all whom it may concern:*

Be it known that I, SCHUYLER FRAZIER, a citizen of the United States, residing at Argentine, Wyandotte county, Kansas, have invented certain new and useful Improvements in Connecting Devices for Shafts and Arms, of which the following is a specification.

This invention relates to apparatus in which rotating or rocking shafts are provided with radial arms, and more especially to roasting-furnaces where hollow shafts carry hollow rabble-arms; and the invention consists in providing the shafts with sockets or recesses and the arms with projections and lugs adapted to said sockets, with keys for securing the parts in place, as fully set forth hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of sufficient of a roasting-furnace to illustrate my invention. Fig. 2 is an enlarged vertical section through the shaft and one of the arms; and Fig. 3 is a transverse section on the line 3 3, Fig. 2.

The shaft A, as shown, is the vertical shaft of a roasting-furnace and supports radial arms B, which constitute the rabbles of such furnace, being carried over the hearths to operate upon the ore in a manner well understood, the shaft having a central channel or being hollow for the passage of air and the arms B also being hollow, with coinciding ports 1 2, permitting the air to pass from the shaft into the arms, the ends of the arms having terminal ports 3, through which the air escapes. In order to permit the rabbles to be connected firmly to the shaft, and especially to permit them to be connected and detached, which requires to be frequently done, and to avoid the necessity of interfering with other operations while this is done, the shaft is provided with sockets *x*, each of which has at one side a recess *y*, and each arm has a projection 12, with a side lug 13, the projection fitting the socket, except that it is narrower than the latter, and the side lugs fitting the recess *y*, the ports 1 and 2 coinciding when the arm is in said recess. To hold the parts in this position, a key C is introduced between the side edge of the projection of the arm and the adjacent face of the socket *x*, thereby preventing any side motion,

while as the projection fits the recess in other respects there can be no other movement of the arm independently of the shaft, so that the arms and the shaft are carried together during the rotation of the shaft, and to further insure a firm tight connection between the parts which will not become loosened under strains the lugs 13 are upon the forward edges of the projections of the arms, so that as the shaft turns in the direction of the arrow, Fig. 2, the lugs will resist any tendency of the arm to be thrust out of position. In order to retain the key C in place, any suitable securing device may be employed; but I prefer to provide each arm with a perforated lug 4 and to provide each key with a pin 5, adapted to the perforation in the lug. When the parts are in place, the pin 5 fits the perforation in the lug 4 and the key is held in position, and when it is necessary to remove the arm the key can be lifted until its pin is out of the perforation, when the key may be removed. It will be evident that a pin upon the lug and a recess in the key would secure the same result and be the equivalent of the construction shown.

It will be seen that the arms may be introduced and withdrawn without inclining them from a horizontal position, thus permitting a ready withdrawal and replacing of an arm when necessary without interference from the presence of ore upon the hearth or from other cause.

While the socket may be of any suitable shape, it is preferably tapering to receive the tapering end of the projection 12, thus insuring a tight fit when the arm is in position and to permit its ready introduction.

While I have shown my invention in connection with the hollow arms constituting the rabbles of roasting-furnaces, it will be evident that the invention described may be used for other purposes where arms have to be connected to shafts so as to be readily applied and removed.

Without limiting myself to the construction shown, I claim—

1. The shaft A provided with sockets having lateral recesses *y*, combined with arms B each having a projection less in width than said socket, and with a lug 13 fitted to said recess *y*, and a key fitting between said pro-

jection and the side of the socket, substantially as set forth.

2. The shaft A provided with sockets having lateral recesses  $y$  combined with arms B  
5 each having a projection less in width than said socket and with a lug 13 fitted to said recess  $y$ , a key fitting between said projection and the side of the socket, and a retaining device for holding the key in place, substantially as set forth.

3. The vertical hollow shaft A having sockets with side recesses, combined with hollow arms B having projections and lugs, and keys  
15 between the projections and lugs, with ports affording communication between the shaft and the arms, substantially as set forth.

4. The shaft A provided with sockets having lateral recesses  $y$ , combined with arms B  
20 each having a projection less in width than said socket and with a lug 13 fitted to said

recess  $y$ , and a key fitting between said projection and the side of the socket, the arms having perforated ears and the keys with pins adapted to the perforations in the ears,  
substantially as set forth.

5. The combination with a furnace, of a hollow shaft, hollow arms constituting rab-  
bles extending from said shaft and having  
projections with lugs extending into corresponding sockets in the shaft, and detach-  
able keys fitting the sockets between the arms  
and shaft, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SCHUYLER FRAZIER.

Witnesses:

P. J. GILPIN,  
W. S. HALL.