

No. 614,145.

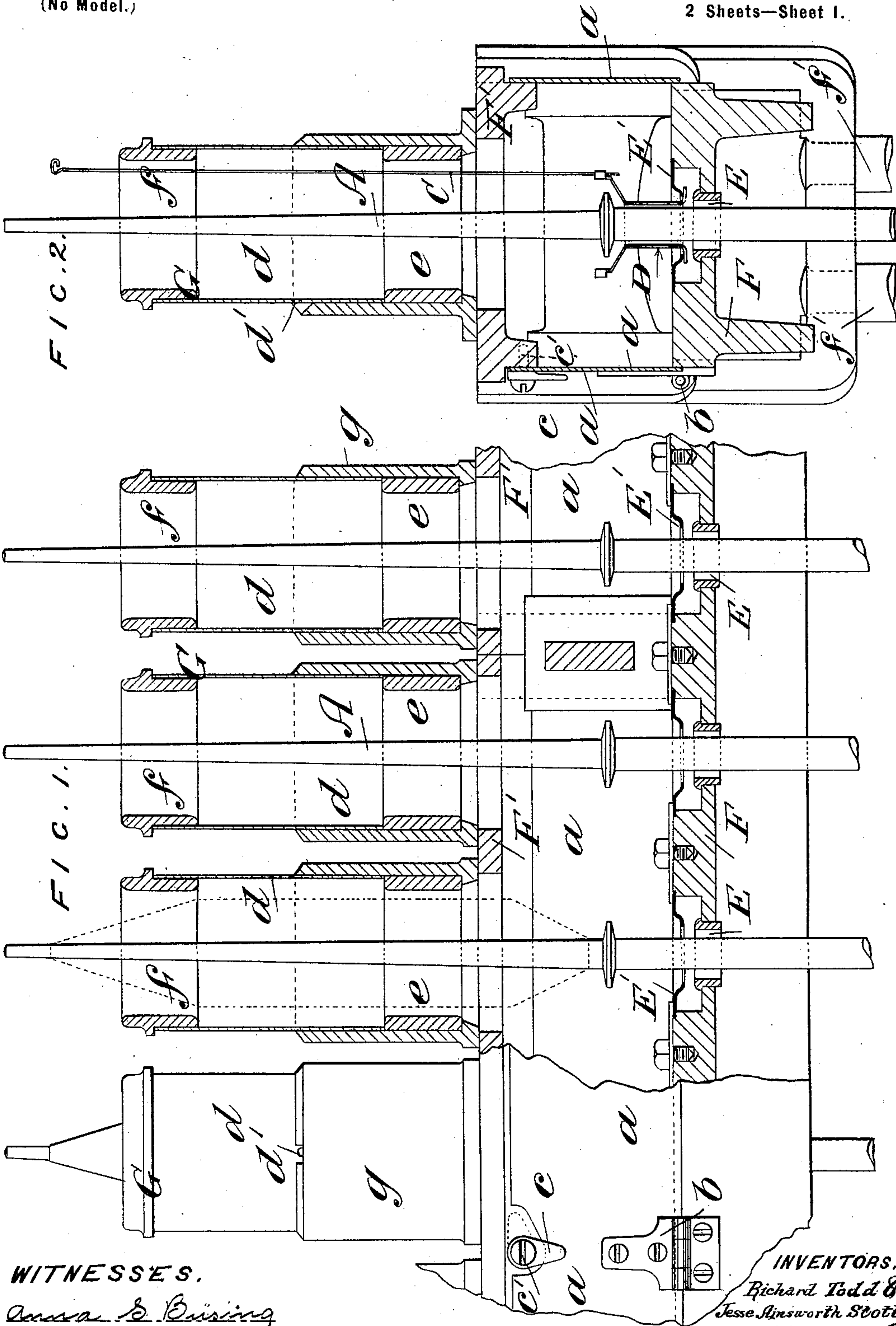
Patented Nov. 15, 1898.

R. TODD & J. A. STOTT.
SPINNING APPARATUS.

(Application filed May 10, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

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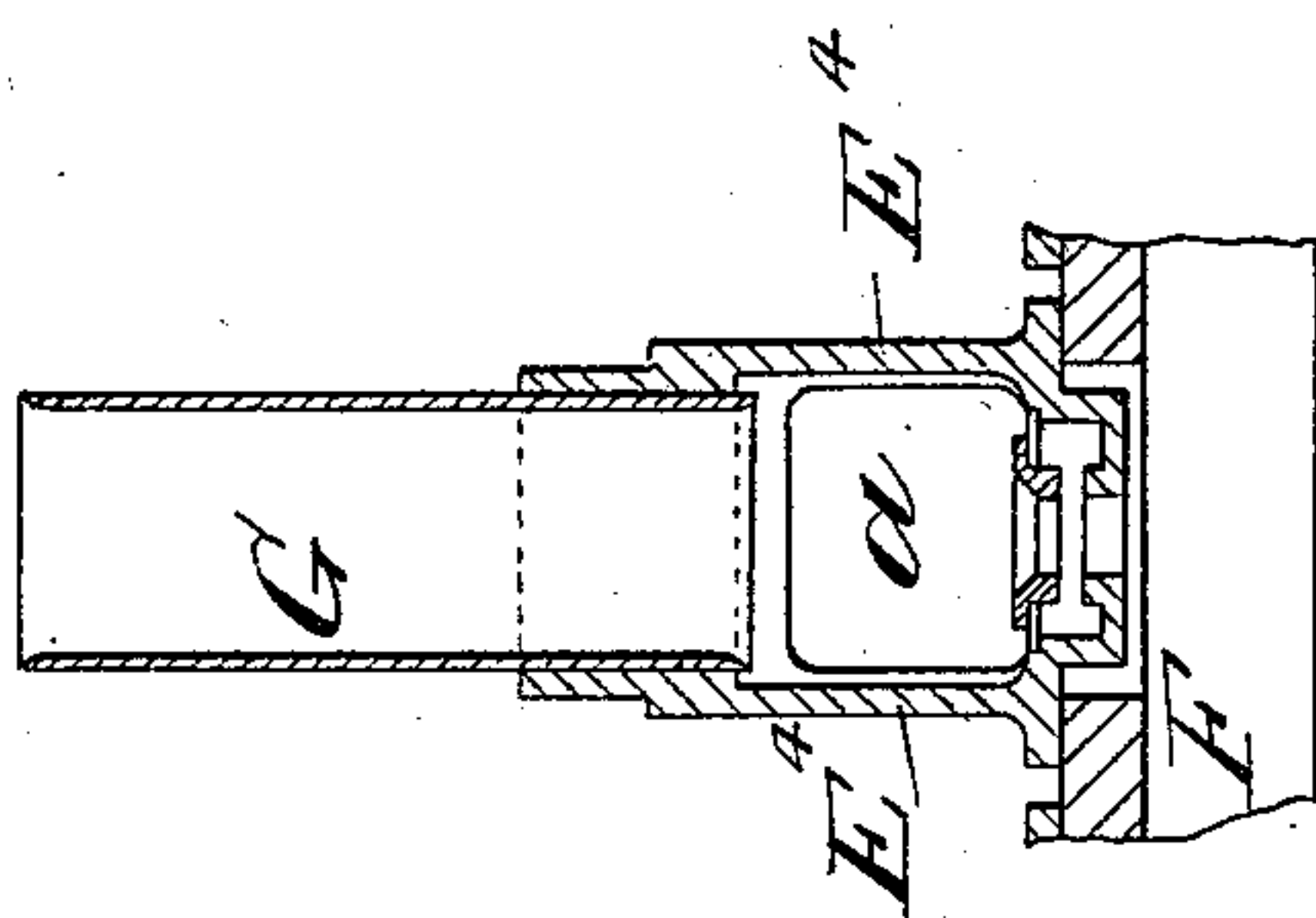
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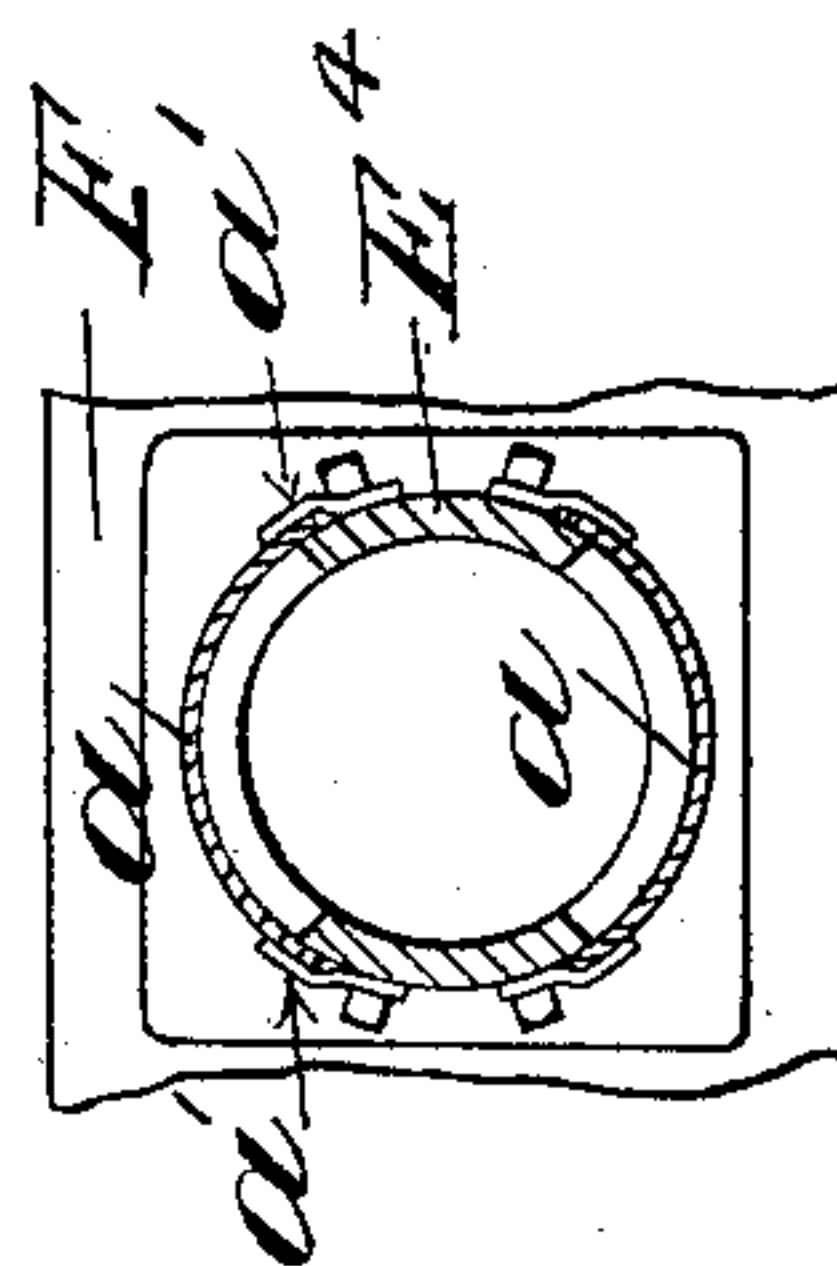
(No Model.)

2 Sheets—Sheet 2.

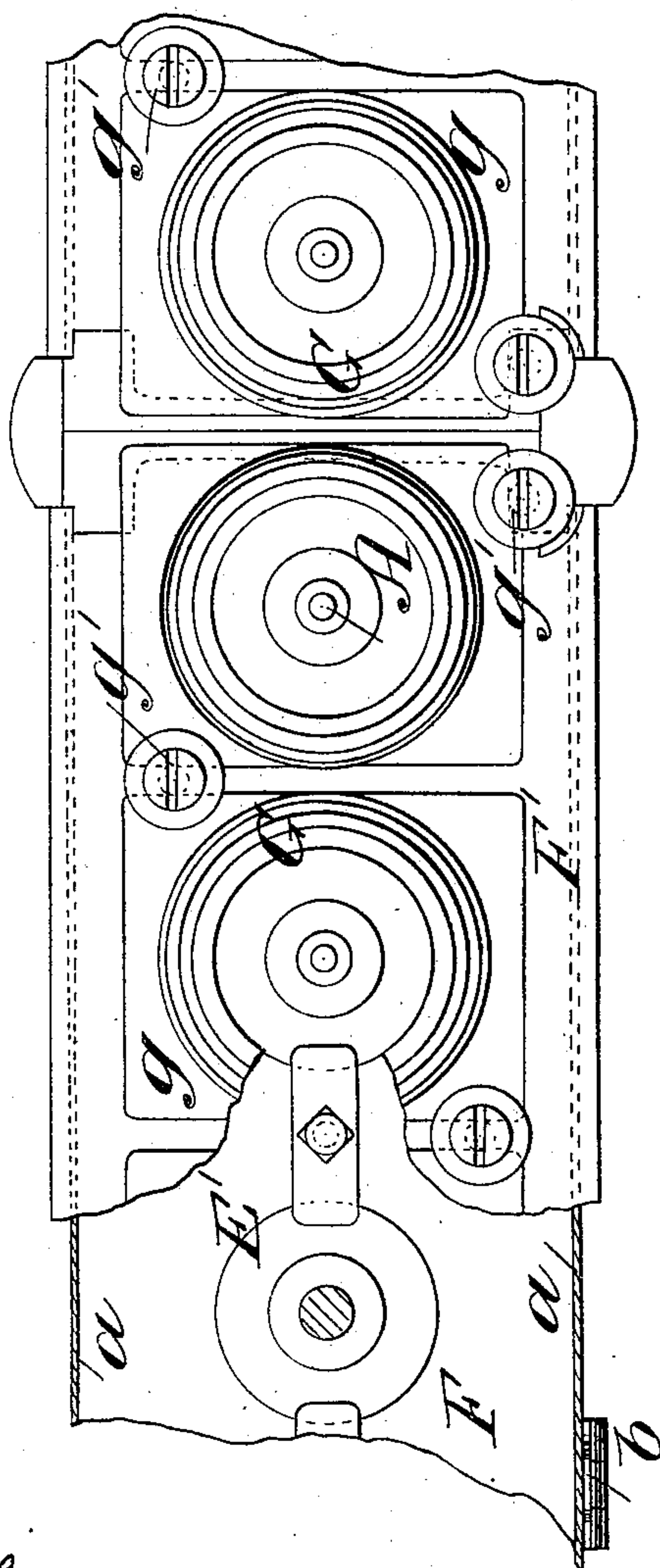
F / C . 4 .



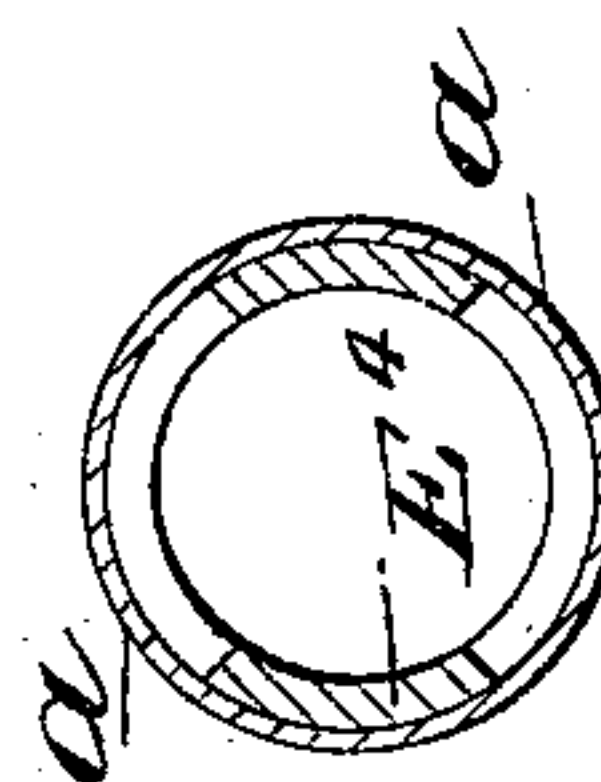
F / C . 5 .



F / C . 3 .



F / C . 6 .



WITNESSES.

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UNITED STATES PATENT OFFICE.

RICHARD TODD, OF HEATON CHAPEL, AND JESSE AINSWORTH STOTT, OF
MANCHESTER, ENGLAND.

SPINNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 614,145, dated November 15, 1898.

Application filed May 10, 1897. Serial No. 635,886. (No model.)

To all whom it may concern:

Be it known that we, RICHARD TODD, manufacturer, of Heather Bank, Broomfield road, Heaton Chapel, and JESSE AINSWORTH STOTT, architect and engineer, of 5 Crossstreet, Manchester, county of Lancaster, England, subjects of the Queen of Great Britain, have invented a new and useful Improvement in Spinning Apparatus, of which the following is a full, clear, and exact description.

Our invention relates to improved means for facilitating the spinning of yarns upon the bare spindle of the ordinary diameter and is applicable chiefly to frames of the throstle type.

The improvements have particular reference to certain further developments in and on the method and means already described in United States patents granted to E. Gessner, Nos. 409,957 and 409,959, and in certain applications of our own now pending under Serial Nos. 611,649, 611,650, and 611,651. In these specifications is indicated a ferrule or ring fitting the spindle loosely, such ferrule carrying a flange or bent fingers which run in a socket or race attached to or formed in the lifting-rail. Such ferrule or ring also carries or is provided with a fixed or detachable rigid or elastic arm or whip-traveler having an eye at the upper end through which the yarn passes to the cop on the spindle. To prevent the whip-traveler from flying too far out by centrifugal force when spinning, a ring or curbing-sleeve supported from the lifting-rail or from a further rail is provided. The mode of spinning by the aid of such loose ferrule, flexible whip-traveler, curbing-sleeve, &c., and the advantages and facilities derived by such use are fully disclosed in the specifications and drawings enumerated above. We find, however, in practice that the perfect working of the ferrules, travelers, and sockets is liable to be interfered with by dust and fluff which is always floating about or present to a greater or less extent in the atmosphere of the spinning-room. Such fluff, dust, and foreign matter are apt to be drawn in and taken up by the whirl or revolution of the ferrules and travelers and have a great tendency when so taken up to clog or choke the parts, thereby caus-

ing friction, which results in the sticking and jamming of the ferrule and consequent production of bad work. This drawback would tend to militate against the successful commercial working of our frames, so that part of our present invention relates to means designed to overcome the disadvantage set forth.

To effect our object, we propose to box in or shroud the space which exists between the two lifting-rails both at the front and back of the rails by means of hinged, pivoted, or sliding doors, so that the sockets, ferrules, and travelers are completely inclosed and shut off.

Our invention also relates to the construction of the curbing-sleeve usually carried by the upper rail, so as to surround the whip-traveler. We find that such curbing-sleeves are liable to become distorted in the process of hardening, and we propose to produce a composite ring formed from three sections or parts consisting of a thin outer tube, which need not be hardened, with two hardened and polished rings fixed in the same, one at the lower and the other in the upper part thereof.

Our invention will be more clearly understood on reference to the annexed two sheets of drawings.

On Sheet 1 Figure 1 shows the application of doors to inclose the space between the rails and also the construction of the improved curbing-sleeve, just so much of a frame being indicated as will suffice to illustrate our invention. Fig. 2 is a sectional view at right angles to Fig. 1, and shows a ferrule fitting the spindle and carrying a whip-traveler. On Sheet 2 Fig. 3 is a plan view, partly in section, of Fig. 1. Fig. 4 shows the application of sliding doors to box in the cut-out pillar in cases where the curbing-sleeve is carried by such a pillar or extension from a single lifting-rail. Fig. 5 is a sectional plan view of Fig. 4. Fig. 6 shows the application of a tube to surround the cut-out pillar.

In the said drawings, F is the lifting-rail, carried by the ordinary pokers f' , cut out in its thickness and fitted with a bush E, and holding down ring E', so as to constitute the race for the bent fingers of the ferrule D, which supports the whip-traveler C. The upper rail F' is supported or carried from the

lower rails upon sockets or supports. As before stated, the object of our invention is to box in the space between these two rails, so as to inclose and guard against the admittance of fluff and dust from the room to the sockets, ferrules, and travelers. As indicated in the drawings, we provide doors *a*, adapted to turn down upon hinges *b*, spaced a suitable distance apart, such doors being held closed by fingers or catches *c*, free to turn on pivots *c'*. Such doors might be hinged either to the lower or to the upper rail, and although we prefer to have a number of such doors along the frame, one abutting against another, we might have a single door extending throughout the length of the rails. It will be obvious that provision of such doors enables ready inspection of and access to the parts to be had, so that lubrication is easily effected and a bent or broken traveler readily replaced. The application of the doors *a* to the back of the rails might be identical with those applied to the front.

Referring to Figs. 4 and 5 and in cases where a single rail is used and the curbing-sleeve supported from a pillar or step *E*⁴, we prefer to shroud or surround the cut-out portions of the pillar by means of sliding doors *a*, free to slide in ways formed by clips *a'*, secured to the pillar *E*⁴.

We have already set forth the fact that the curbing-sleeve of a continuous tube formation is liable in the process of hardening to become distorted, and we now propose to use such a sleeve as is indicated in Figs. 1 and 2. We make this curbing-sleeve in three parts *d e f*, all carried by a holder *g*, adjustably secured to the rail *F'* by means of screws and washers *g'*. The thin outer tube *d* need not be hardened; but the two rings *e* and *f* are preferably hardened and polished and being of comparatively slight depth are not so

likely to be affected in the hardening process. The ring *e* beds in the holder *g*, and the truth and concentricity of this ring are a matter of the utmost importance, as the whip-traveler is almost constantly in contact therewith.

As it is advantageous to be able to readily remove the confining-sleeve *G* for the purpose of cleaning it, we propose to slit the lower end of the thin outer tube *d* with two or more slits and to push the same into the socket or holder *g*, which might be bored slightly taper, if desired. The tube or shell *d* carries the ring *f* at the top, as clearly shown in the drawings.

In order to lubricate the lower part of the whip-traveler, we prefer to make a small oil-hole *d'* in the tube *d* above the top of the inner ring, as clearly shown in the drawings.

In setting up the parts we adjust and secure the spindles in the bolster-rail, so as to be absolutely concentric with the socket-race in the rail *F*, afterward adjusting the curbing-sleeve *G* to the spindles, fixing them in their adjusted positions by means of the screws and washers *g'*.

We claim as our invention—

In combination in a spinning apparatus, the curbing-sleeve, a ferrule and ferrule-race, a lifting-rail carrying the same, and movable means for closing in the space over and about the ferrule and its race to exclude the dust therefrom, said means when moved permitting access to the ferrule and its race, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

RICHARD TODD.

JESSE AINSWORTH STOTT.

Witnesses:

JOSHUA ENTWISLE,
RICHARD IBBERSON.