No. 704,585. Patented July 15, 1902.

L. SCHUTTE.

INDUCTION CONDENSER.

(Application filed Sept. 25, 1901.)

(No Model.)

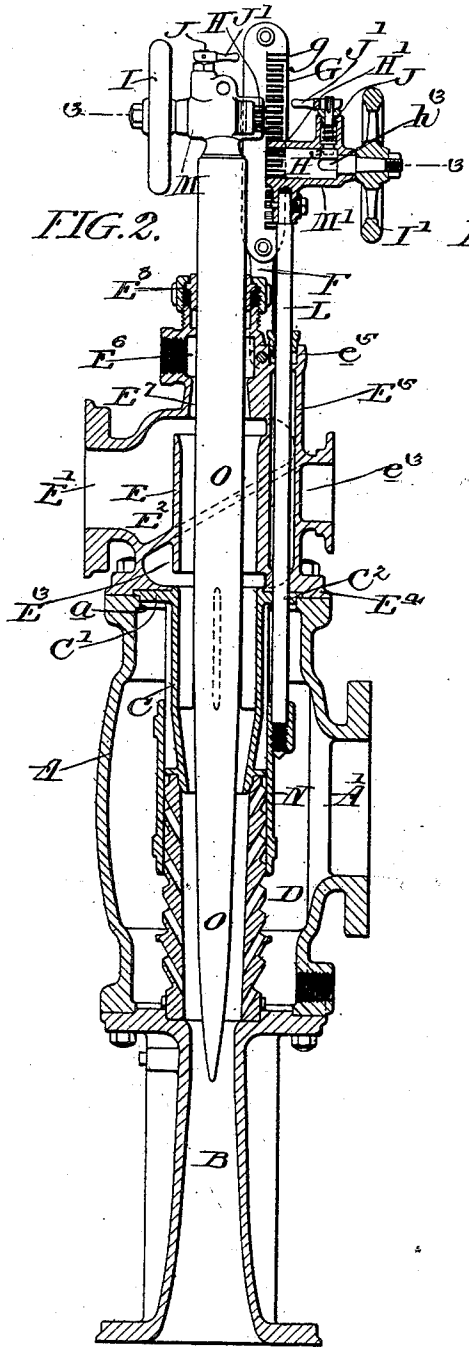


FIG. 2.

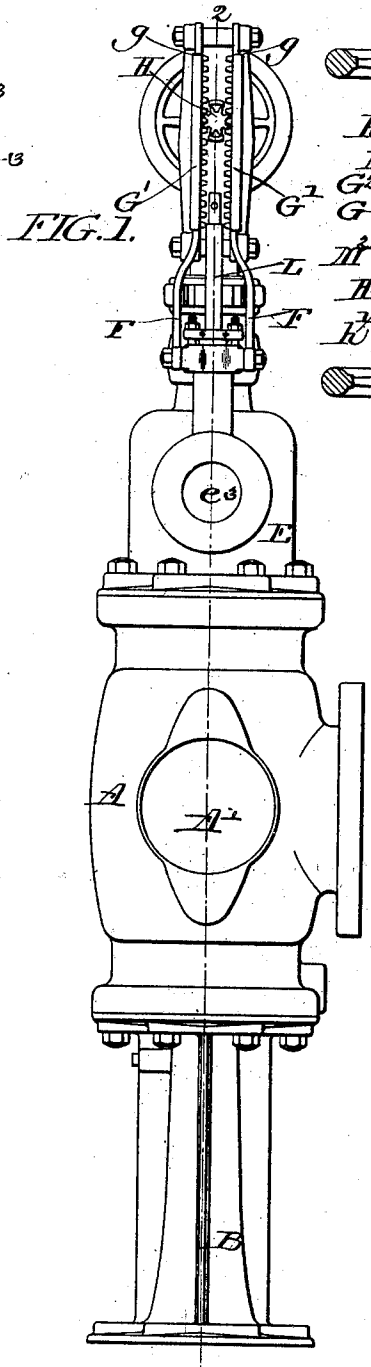


FIG. 1.

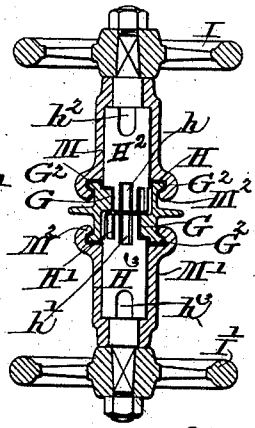


FIG. 3.

Witnesses
[illegible]
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UNITED STATES PATENT OFFICE.

LOUIS SCHUTTE, OF PHILADELPHIA, PENNSYLVANIA.

INDUCTION-CONDENSER.

SPECIFICATION forming part of Letters Patent No. 704,585, dated July 15, 1902.

Application filed September 25, 1901. Serial No. 76,497. (No model.)

To all whom it may concern:

Be it known that I, LOUIS SCHUTTE, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Induction-Condensers, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to the construction of induction-condensers adapted to be used in connection with exhaust-steam, and has for its object in part to facilitate the angular adjustment of the parts adapted to connect with the water and steam pipes and in part the provision of improved mechanism for adjusting the sleeve and ram.

The nature of my special improvements will be best understood as described in connection with the drawings, in which they are illustrated, and in which—

Figure 1 is a side elevation of the condenser; Fig. 2, a longitudinal section on the line 2 2 of Fig. 1, and Fig. 3 a section on the irregular line 3 3 of Fig. 2.

A indicates the main body of the condenser, into which the exhaust-steam is introduced through the opening A′. This part of the condenser has an opening *a* at top with a flat (preferably) annular top or edge, as shown. B is the discharge-tube, secured to the bottom of the main body A.

C is the water-nozzle, resting on the top of the opening A through an annular flange C′ and capable of being angularly adjusted, said annular flange having formed through it a perforation C^2 for the spindle of the adjustable sleeve.

D is the combining-tube, secured, as shown, between the end of the nozzle C and the discharge-tube B.

E is the water-head, forming the upper part of the condenser-body, secured to the top of the opening *a* by bolts or other convenient devices passing through an annular flange E^4 and adjustable angularly thereon. The head E has an opening E′ for the water-pipe connection and internally is formed, as shown, with a sleeve or nozzle E^2, forming practically a continuation of the nozzle C, but with an opening intervening between them which leads into a passage (indicated at E^3) and communicating with an outlet e^3. The head E is also formed with a perforation (indicated at E^5) for the passage of the adjustable rod of the nozzle, said passage having a stuffing-box e^5 at its upper end. Above the main chamber in head E is formed a chamber E^6, connected with a source of live-steam or pressure-water supply and communicating with the main body of the head through an expanding nozzle, (indicated at E^7,) E^8 indicating a stuffing-box at the extreme top of the head. Secured to the upper part of the head E are two pivoted links F F, to the upper ends of which are secured racks, (indicated at G and G′,) the said racks being firmly secured together, as shown, and formed with their teeth on opposite edges of the two rack-bars, so that they do not come opposite to each other. At the top of each set of rack-teeth is an extra-long tooth, (indicated at *g*.)

M and M′ are bearings formed, as shown, with lips M^2, adapted to engage and slide on ribs G^2, formed on the rack-bars. These bearings serve to supports shafts (indicated at H^2 H^3) which support on their ends gear-wheels, (indicated at H and H′,) the gear-wheel H engaging with the rack G and the gear-wheel H′ with the rack G′. Each of these gear-wheels is formed with one extra-long space between its teeth, as indicated at *h*, so that they can only be engaged with the rack in one certain position—that is to say, the space *h* is made to engage with the long rack-tooth *g*, which insures the correct adjustment of the operative parts. The shafts H^2 and H^3 have each secured to them hand-wheels I and I′, by which they and the gear-wheels are turned, and each of the shafts is formed, as shown, with detent-openings, (indicated at h^2,) which can be engaged by a locking-bolt, (indicated at J,) J′ indicating a lever for withdrawing said bolts.

N indicates an adjustable sleeve working over the upper part of the combining-tube E and having secured to it the rod L, which passes through the perforations C^2 and E^5 and is attached to the bearing M′.

O indicates the ram, passing through the center of the head E of the main body A and attached at its upper end to the bearing M.

It will be obvious that in the construction

shown the head E can be turned to various angular positions with respect to the body A without interfering with the working of the apparatus. The ram O being centrally seated turns without in any way affecting its operative combination with the other parts of the device, and the adjusting-rod L in turning with the head turns with it the nozzle C and sleeve N without in any way affecting their operative combination. This is highly advantageous, because it enables convenient connections to be made to the exhaust-steam pipe and water-pipe. It will be obvious that by turning the hand-wheel I and the shaft and gear-wheel attached to it the rod L and sleeve N can be raised or lowered at will and secured in any desired position by means of engagement of the bolt J with one of the detent-openings h^3. In the same way the ram O is vertically adjusted by turning the hand-wheel I and locked in position by a device identical with that used in connection with the hand-wheel I′. The other features of the construction illustrated are of a familiar kind and need no further description.

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

1. In a condenser having a main body A with an opening a at its top, a combining-tube situated in said main body, an adjustable sleeve working over said combining-tube and a sleeve-adjusting rod extending from said tube, the combination with said parts of a nozzle C having a flange C′ resting on the end of the opening a and having a perforation C^2 for the passage of the sleeve-adjusting rod, a head E angularly adjustable on the end of the main body and about the opening a said head being formed with a perforation E^5 for the sleeve-adjusting rod, a ram O extending through the head E and nozzle C into the combining-tube D and means for longitudinally adjusting the ram and sleeve-adjusting rod, said means being secured to the head E, all substantially as described and so that the head E and sleeve N can be adjusted in angular direction without interfering with the operativeness of the condenser.

2. In a condenser having an adjustable ram and sleeve, the combination with the condenser-body of racks G and G′, bearings M and M′ secured to the ram and sleeve-spindle and sliding on the racks, shafts H^2 H^3 supported in said bearings and gear-wheels H H′ secured to said shafts and engaging respectively the racks G and G′.

3. In a condenser having an adjustable ram and sleeve, the combination with the condenser-body of racks G and G′ secured to said condenser-body by pivoted links F, bearings M and M′ secured to the ram and sleeve-spindle and sliding on the racks, shafts H^2 H^3 supported in said bearings and gear-wheels H H′ secured to said shafts and engaging respectively the racks G and G′.

4. In a condenser having an adjustable ram and sleeve, the combination with the condenser-body of racks G and G′, bearings M and M′ secured to the ram and sleeve-spindle and sliding on the racks, shafts H^2 H^3 supported in said bearings, gear-wheels H H′ secured to said shafts and engaging respectively the racks G and G′ and means for locking the shafts and gear-wheels in determined position.

5. In a condenser having an adjustable ram and sleeve the combination with the condenser-body of racks G and G′ each having at top an extra-long tooth g, bearings M and M′ secured to the ram and sleeve-spindle and sliding on the racks, shafts H^2 H^3 supported in said bearings and gear-wheels H H′ secured to said shafts and engaging respectively the racks G and G′, each of said gear-wheels having an extra-long space between teeth as h whereby the gears and racks are always engaged in the same way.

LOUIS SCHUTTE.

Witnesses:
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D. STEWART.