No. 781,437. PATENTED JAN. 31, 1905.

H. LELARGE.

ELECTRICAL APPARATUS FOR SEPARATING COKE FROM CINDERS, &c.

APPLICATION FILED APR. 13, 1904.

2 SHEETS—SHEET 1.

Fig. 1

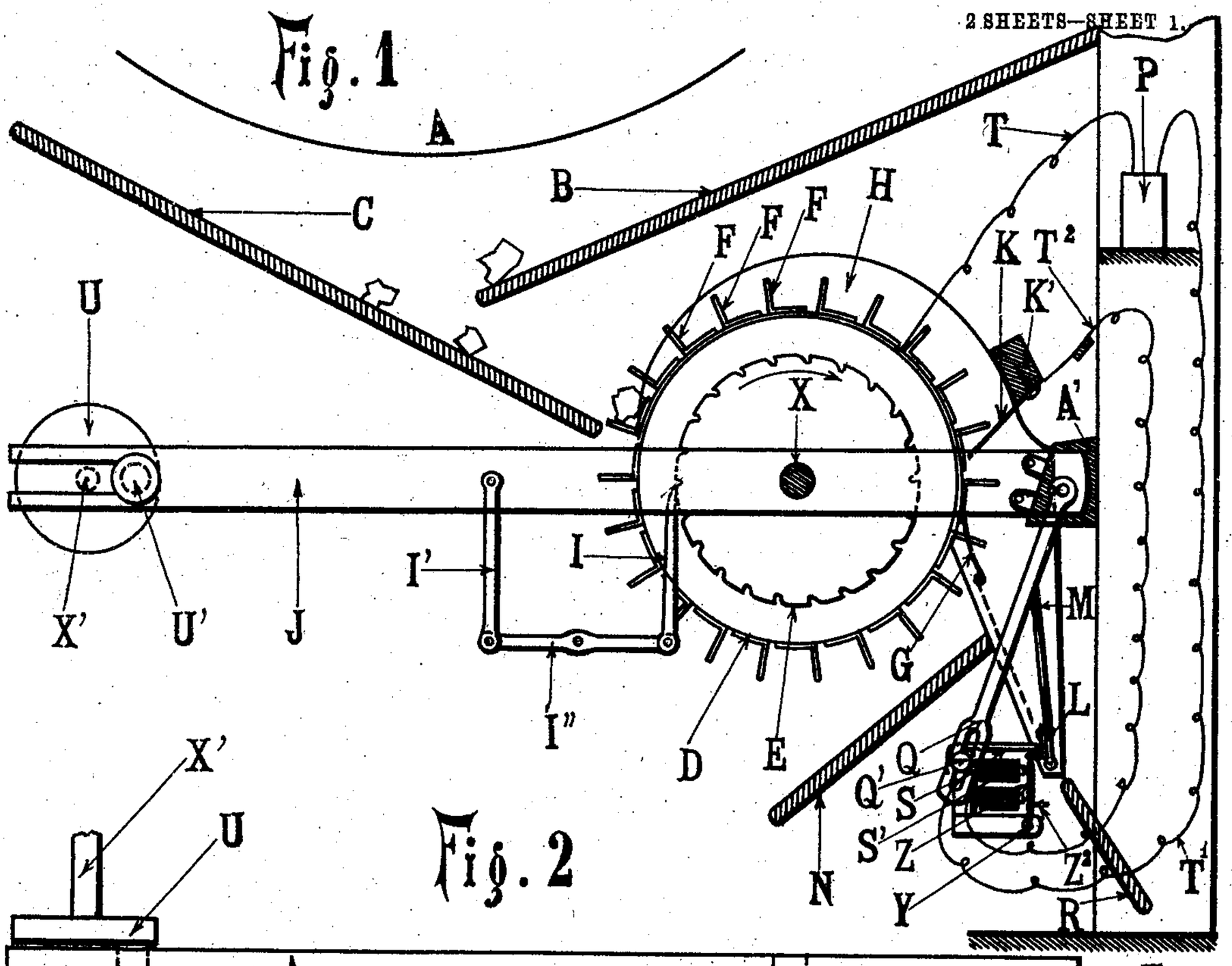
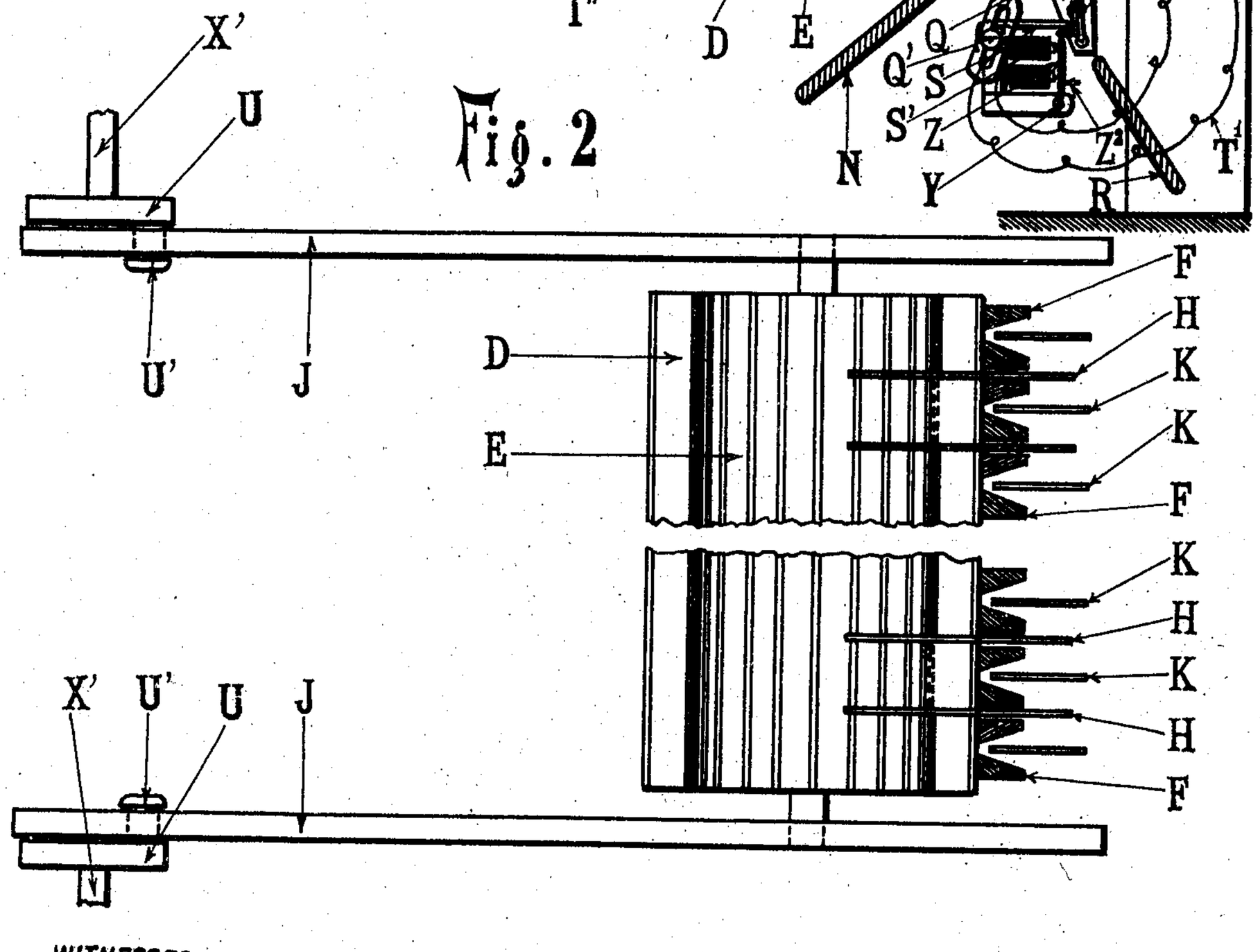


Fig. 2



WITNESSES:

Frank E. Boyce.

Jacob H. Glaeser.

INVENTOR

Henri Lelarge

BY Goepel & Niles

ATTORNEYS.

No. 781,437. PATENTED JAN. 31, 1905.

H. LELARGE.

ELECTRICAL APPARATUS FOR SEPARATING COKE FROM CINDERS, &c.

APPLICATION FILED APR. 13, 1904.

2 SHEETS—SHEET 2.

Fig. 3

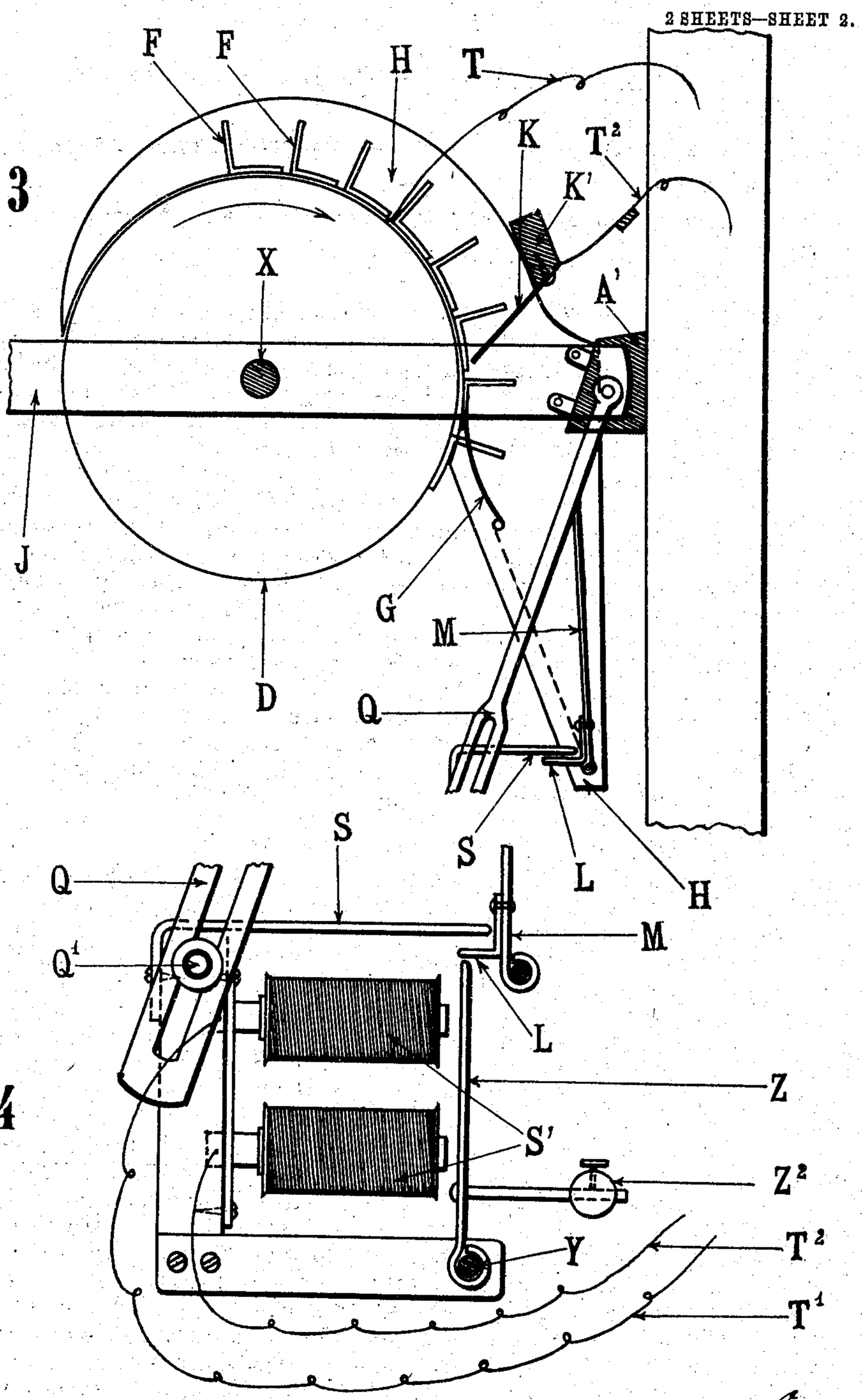


Fig. 4

WITNESSES:

Frank E. Boyce.

Jacob H. Gildersleeve.

INVENTOR

Henri Lelarge

BY Goepel & Kile

ATTORNEYS.

No. 781,437. Patented January 31, 1905.

UNITED STATES PATENT OFFICE.

HENRI LELARGE, OF LIEGE, BELGIUM.

ELECTRICAL APPARATUS FOR SEPARATING COKE FROM CINDERS, &c.

SPECIFICATION forming part of Letters Patent No. 781,437, dated January 31, 1905.

Application filed April 13, 1904. Serial No. 202,957.

To all whom it may concern:

Be it known that I, HENRI LELARGE, of 308 Rue de Renory, Kinkempois, Liege, Belgium, have invented a new and useful Improved Electrical Apparatus for Separating Coke from Cinders and other Substances, of which the following is a full, clear, and exact description.

This invention relates to the separation of coke from cinders and other substances—such as stones, slate, and the like—frequently embodied in coal.

The object of the invention is to provide mechanism which will quickly and efficiently effect the separation by means of electricity and deposit the assorted coke and other substances into respective receptacles.

For a detailed description of my invention reference is to be had to the accompanying drawings, wherein—

Figure is a side elevation, partly in section, of my improved apparatus. Fig. 2 is a plan illustrating parts of the mechanism shown in Fig. 1. Fig. 3 is a detail view illustrating parts shown in Figs. 1 and 2 drawn to a larger scale. Fig. 4 illustrates the electrical mechanism drawn to a larger scale.

A refers to a rotary sifter which assorts the cinders, &c., and deposits them upon the inclined plate B, from whence they fall onto the inclined plate C.

A drum D is rotatably carried by a suitably-supported shaft X and has secured to its ends ratchet or toothed wheels E. On the circumferential surface of the drum are radially and longitudinally arranged angle-irons F. The longitudinal channels formed by the irons F are transversely divided by a series of plates H, which are suitably supported by a fixture, as A′, and the end ones extend downwardly below the drum.

Pivotally mounted on the shaft X are two rocking levers J, to which an oscillatory movement is imparted by wrist-pins U′ of crank-disks U on shafts X′. The levers J each carry a depending link I′, connected to one end of a pivoted rock-bar I″, to the other end of which is pivoted the pawl I, which engages the teeth of the wheel E.

To the free ends of the levers J are pivoted depending rods Q, which are adjustably connected, by means of a pivot Q′ and slot in the bar-rod, to the frame which carries electromagnets S′. This frame is pivoted on a suitably-supported shaft Y and carries the arms S. The shaft Y has hinged to it an armature Z, from which projects an arm carrying a counterbalance-weight Z^2.

Pivoted between the depending portions of the outermost of the plates H is a plate M, to which is attached the projection L. Above and contiguous to the upper edge of the plate M is the chute G, secured between the outermost plates H.

Secured to suitable fixed supports K′ are a series of metallic tongues K, which are electrically connected by the wire T^2 with the electromagnets S′, which are connected by the wire T′ with the battery P, and the battery is connected by a wire T to any suitable parts of the drum D.

The operation of the apparatus is as follows: Coke, cinders, &c., fall, as before mentioned, from the sifter A to the chutes B and C and enter the spaces between the angle-irons F and are retained in even distribution along said spaces by the plates H. By the rotation of the drum D the coke, cinders, &c., are carried around until they are brought into contact with the metallic tongues K. During the rotation of the drum D, which receives an intermittent motion from the pawls I and wheels E, the electromagnets are rocked about the shaft Y by the rods Q and levers J. When cinders and other matter which are not conductors of electricity are brought into contact with the tongues K, they simply pass to the chute G and fall into a suitable receptacle. When, however, coke or other conductors of electricity are brought into contact with one of the tongues K, an electrocircuit is made through the drum D, wire T, battery P, wire T′, electromagnets S′, and wire T^2. Consequently the magnets become excited and attract and draw rearwardly the armature Z from beneath the projection L, thus permitting the plate or chute M to fall into alinement with the chute G to receive the coke therefrom and conduct it by gravity to a receptacle separate from that which receives the cin-

ders. At each oscillation of the magnet-frame the arm S replaces the chute M into approximated vertical though slightly-inclined position and if the current be broken releases the armature Z and leaves it in position where it is retained by the weight Z^2 to support the projection L and chute M.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be constructed and operated, I declare that what I claim is—

1. An apparatus for separating coke from cinders and other substances, comprising a rotary drum having upon its surface channels or receptacles for receiving the material to be separated, a stationary chute for delivering material from said drum, a movable chute in proximity to said stationary chute, and automatic means for shifting said movable chute into position to deflect coke and other electrically-conductive substances from said stationary chute.

2. An apparatus for separating coke from cinders and other substances, comprising a rotary drum having upon its surface channels or receptacles for receiving the material to be separated, electrical conductors contiguous to said channels or receptacles, electromagnets electrically connected with said conductors, a stationary chute for delivering material from said drum, a movable chute in proximity to said stationary chute, and means operable by said electromagnets for automatically shifting said movable chute into position to deflect coke and other electrically-conductive substances from said stationary chute.

3. An apparatus for separating coke from cinders and other substances, comprising a rotary drum provided upon its surface with channels or receptacles for receiving the material to be separated, electrical conductors contiguous to said channels or receptacles, electromagnets electrically connected with said conductors, a stationary chute for delivering material from said drum, a gravity-positioned chute pivoted in proximity to said stationary chute for deflecting coke and other conductors of electricity from the same, and means operated by said electromagnets for automatically locking said gravity-positioned chute in inoperative position and for automatically unlocking the same.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

H. LELARGE.

Witnesses:
T. HAND,
JEFFR. CASTILLO MUNZ.