

No. 641,957.

Patented Jan. 23, 1900.

G. HEIDEL.
ELECTRIC LIGHTING APPARATUS.

(Application filed Feb. 20, 1899.)

(No Model.)

FIG. I.

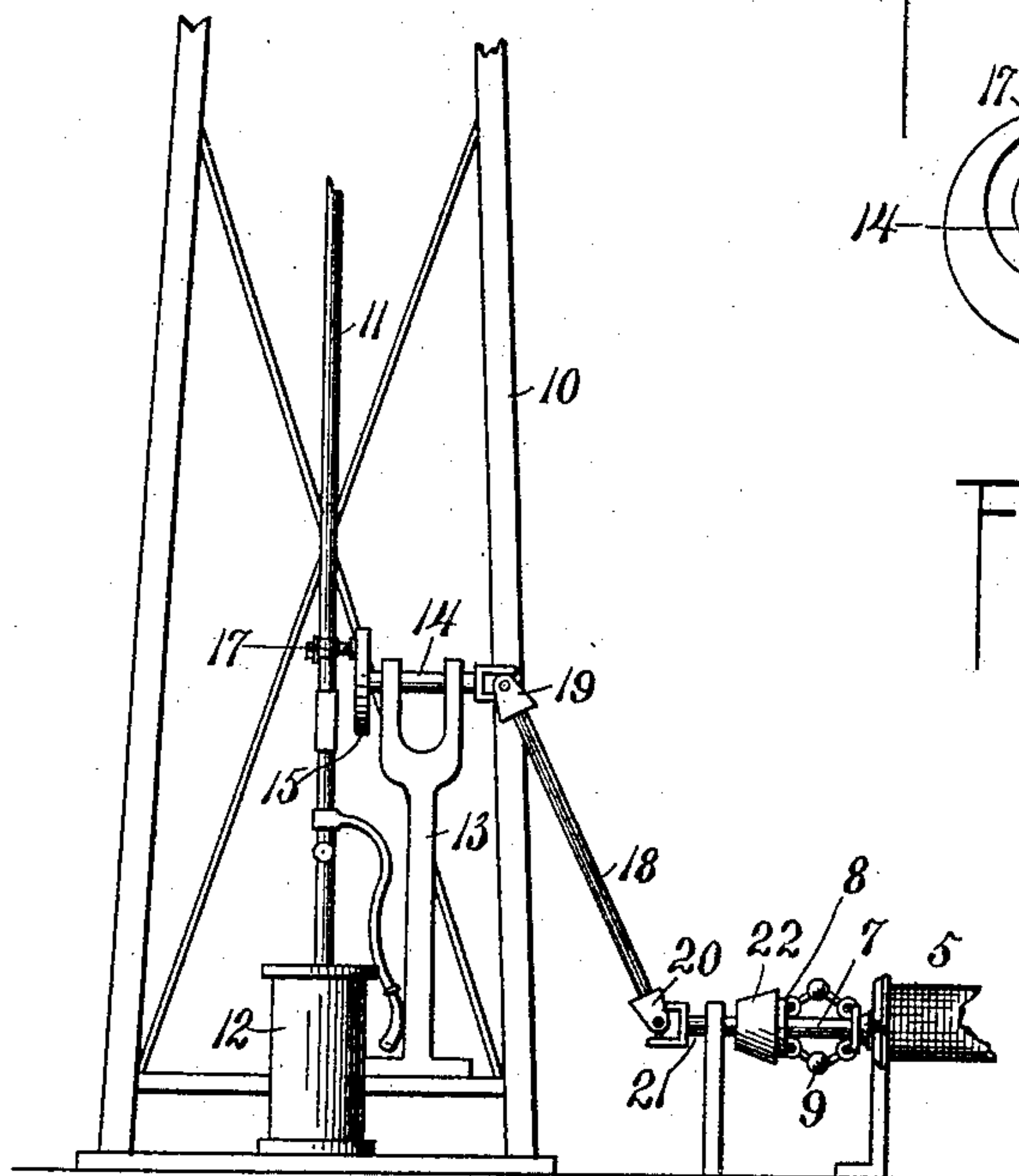


FIG. III.

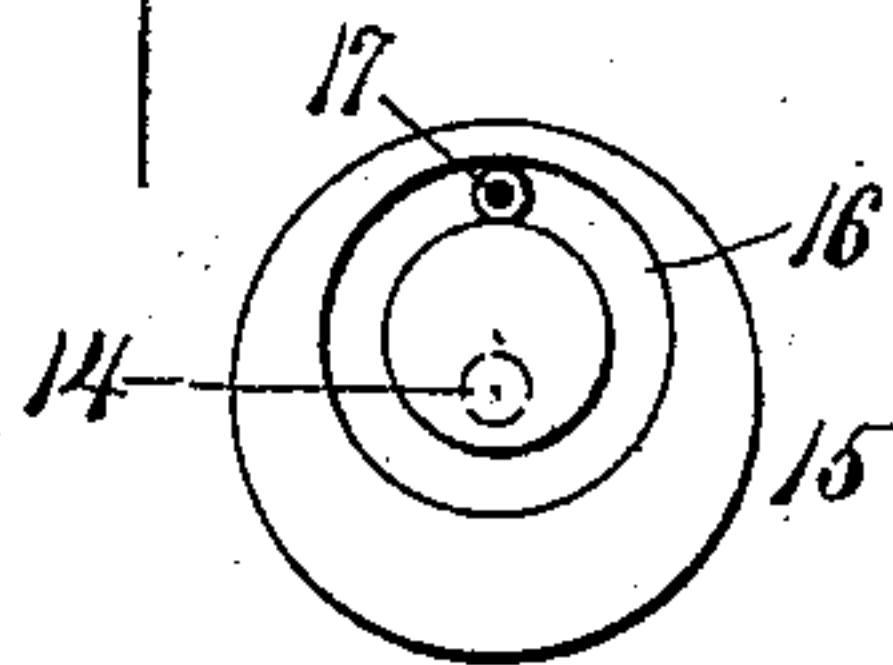


FIG. IV.

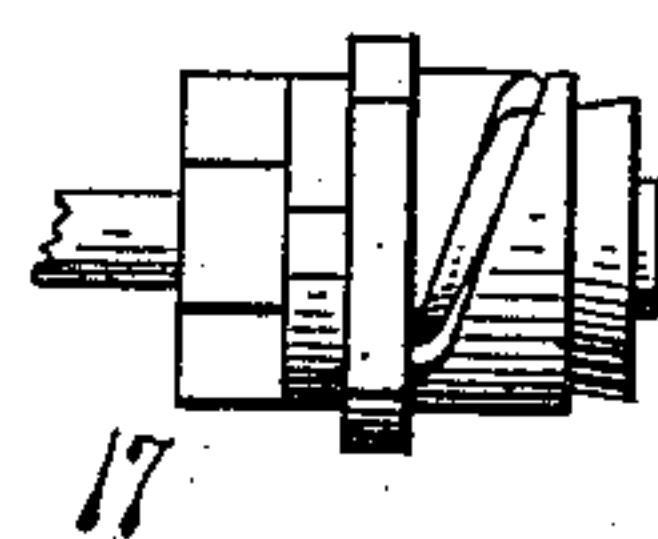


FIG. V.

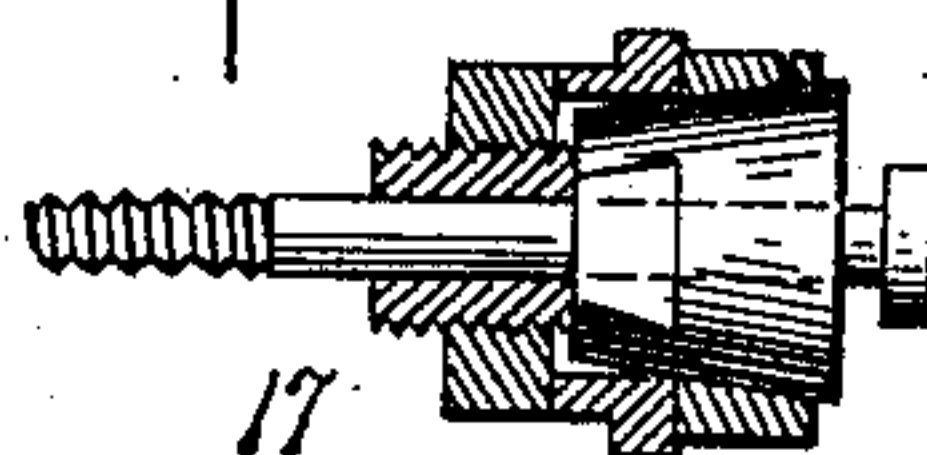
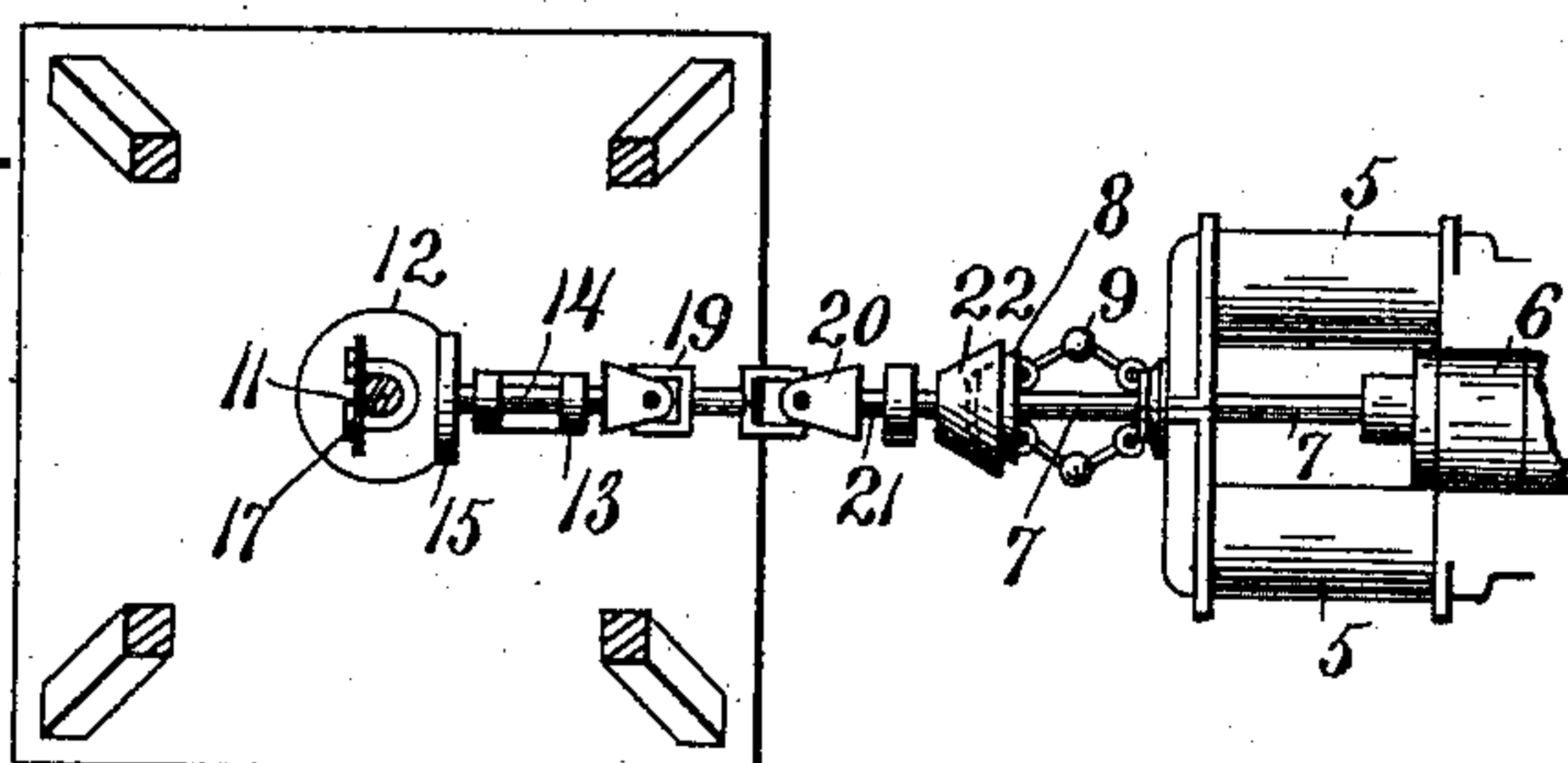


FIG. II.



WITNESSES

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ELECTRIC-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 641,957, dated January 23, 1900.

Application filed February 20, 1899. Serial No. 706,173. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVOS HEIDEL, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Electric-Lighting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an electric-lighting apparatus arranged to be operated through the medium of a windmill, the object of the invention being essentially to provide an apparatus by means of which electric lights may be furnished from an individual apparatus at suburban homes and farm-houses.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claim.

Figure I is an elevation of the dynamo-operating mechanism in connection with the windmill. Fig. II is a top view thereof. Fig. III is a face view of the driving-shaft cam-disk. Fig. IV is a side elevation of an expansible wrist-pin which I employ. Fig. V is a longitudinal section of the same.

5 designates a part of a dynamo which is designed to be located in proximity to a windmill and may be mounted on suitable supports in any desirable position. The dynamo is provided with an armature 6 on an armature-shaft 7, and the armature is provided with the usual appurtenances. The armature-shaft 7 is provided with a clutch member 8, that is movable on said shaft and is controlled by governor-toggles 9.

10 designates a windmill, which may be of any common construction and provided with the usual connecting-rod 11, that may or may not lead to a pump 12.

13 designates a standard in which a drive-shaft 14 is mounted. The drive-shaft 14 is provided with a disk 15, containing an eccentric or

cam groove 16, located in the face thereof. The groove 16 receives a fixed expansible wrist-pin 17, carried by the connecting-rod 11, so that by the vibration and reciprocation of said connecting-rod under the action of the windmill rotation is imparted to the disk 15 by the wrist-pin 17, secured at desired position in the groove 16 of said disk, and the drive-shaft 14 is thus revolved.

18 designates a tumbler-rod, connected at one end by a knuckle-joint 19 to the drive-shaft 14, and connected at its other end by a knuckle-joint 20 to a shaft 21, that leads to the armature-shaft 7, and is adapted to connect therewith by means of a clutch member 22, that receives connection with the clutch member 8 on said armature-shaft. It will therefore be seen that the operation of the windmill causes motion to be imparted through the drive-shaft 14 and tumbler-rod 18 to the armature-shaft 7 to supply the motive power to the dynamo 5, and thereby generate the electrical current, which is conveyed to a storage battery 44. Electricity thus generated is accumulated in said storage battery and may be used therefrom as occasion may demand. The light-wires C and C' may lead to either an arc-lamp 23 or an incandescent lamp 24, as shown in Fig. I.

I claim as my invention—

In an electric-lighting apparatus, the connecting-rod of a windmill, a wrist-pin carried thereby, a drive-shaft, a disk carried by said drive-shaft provided with a cam-groove adapted to receive said wrist-pin, a dynamo, and means of connection between said drive-shaft and the armature-shaft of said dynamo, substantially as described.

GUSTAVOS HEIDEL.

In presence of—

E. S. KNIGHT,
G. A. TAUBERSCHMIDT.