

UNITED STATES PATENT OFFICE.

JAMES P. CLIFFORD, OF BROOKLYN, NEW YORK.

AIR-GAS MACHINE.

SPECIFICATION forming part of Letters Patent No. 277,113, dated May 8, 1883.

Application filed November 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. CLIFFORD, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Air-Gas Machines, of which the following is a specification.

This invention is designed to obviate a defect very commonly experienced in that class of apparatus commonly termed "gas-machines," in which "illuminating-gas," so termed, is produced by saturating atmospheric air with the vapor of gasoline, naphtha, or other equivalent light hydrocarbon. In such machines it frequently occurs that when the apparatus is first supplied with the hydrocarbon the proportion of hydrocarbon taken up or incorporated with the air is greater than is required for the production of the requisite grade of illuminating-gas—in other words, for the production of a gas having a stated or desired illuminating-power. This not only involves a waste of material, but induces a smoky flame at the gas-burners, which greatly impairs the usefulness of the apparatus.

My invention comprises certain novel combinations of parts, whereby in the event of the too great saturation of the air with hydrocarbon, as aforesaid, an additional supply of atmospheric air is introduced to the gas while the same is passing from the apparatus to the burner, the quality of the gas—in other words, the extent to which the air is saturated with the hydrocarbon—being thus rendered substantially uniform as it passes to the burner, and of the requisite grade or degree of illuminating-power.

Figure 1 is a side view and partial vertical sectional view representing an apparatus embracing my said invention, and Fig. 2 is a sectional view of a valve included in the construction of said apparatus.

A is the usual rotary pump employed for forcing air to and through the usual or any suitable tank for containing the hydrocarbon, the shaft of the said pump being provided with a drum, B, connected with a cord, C, and weight D, the cord passing over suitable pulleys, as shown at *a* and *b*, so that the descent of the weight actuates the pump to force the air, as aforesaid. The outlet pipe or passage in the pump A is

shown at *c*. From this outlet pipe or passage *c* extends a pipe, E, to the tank F, from which latter extends the gas-pipe G, connected with any desired number of burners, a burner being represented at *d*. The means by which the air in its passage through the tank F and contents thereof is caused to be saturated with the hydrocarbon vapor from the fluid contained in said tank may be substantially the same as are in common use, and therefore need no specific description here. Extending from the outlet *c* is a secondary air-pipe, H, in which is a valve, I. This valve should be of the class commonly known as "rotary valves," and may be of any suitable or ordinary construction to alternately close and open the passage through the secondary air-pipe H as the said valve is rotated. The construction of such valves for various purposes being well known, no specific description of the valve itself is requisite. A form of valve suitable for the purpose, however, is represented in the sectional view, Fig. 2, A' being the body or moving portion of the valve; B', the shell or seat thereof, and *a'* and *b'* indicating, respectively, the inlet and outlet ports of said valve. The valve I is provided with the usual valve-stem, *e*, which latter is provided with a band-wheel, *f*, from which extends a band or belt, *g*, to a similar band-wheel, *h*, on the shaft *i* of the pump A and drum B. The secondary air-pipe H terminates underneath the dome *k* of the apparatus K, which, for convenience, I designate a "gasometer," although the function thereof, as herein presently explained, is to act upon the air and not upon the gas. The lower part of the dome *k* is extended downward into the body or shell *m* of the gasometer K, which latter is suitably filled with water to provide a lute or seal between the two parts *k* and *m*, care being taken that the water shall not rise above the open upper ends of the pipes H and L, the latter having its upper end open and on substantially the same level as the upper end of the secondary air-pipe H, and communicating at its lower end with the gas-pipe G, between the tank F and the burner supplied by the said pipe G—as, for example, the burner *d*. The available area of this pipe may be adjusted by a valve at *a''*. It will be observed that the secondary air-pipe

(No Model.)

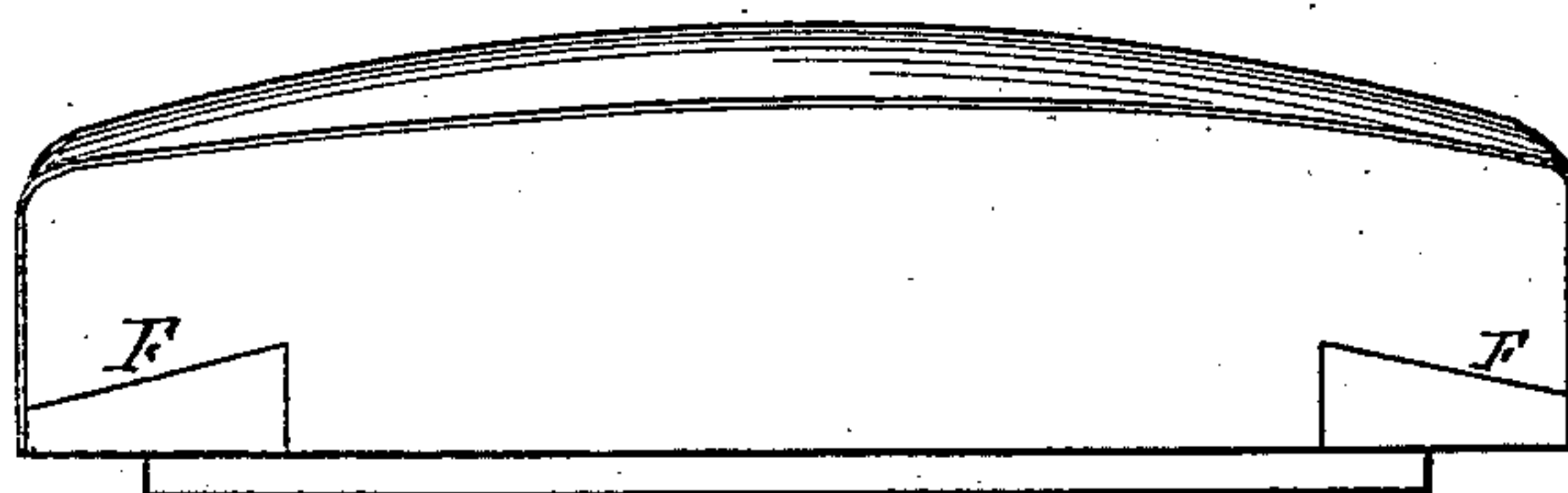
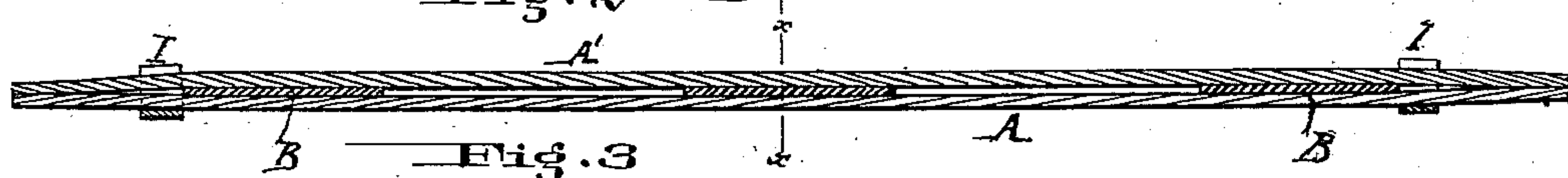
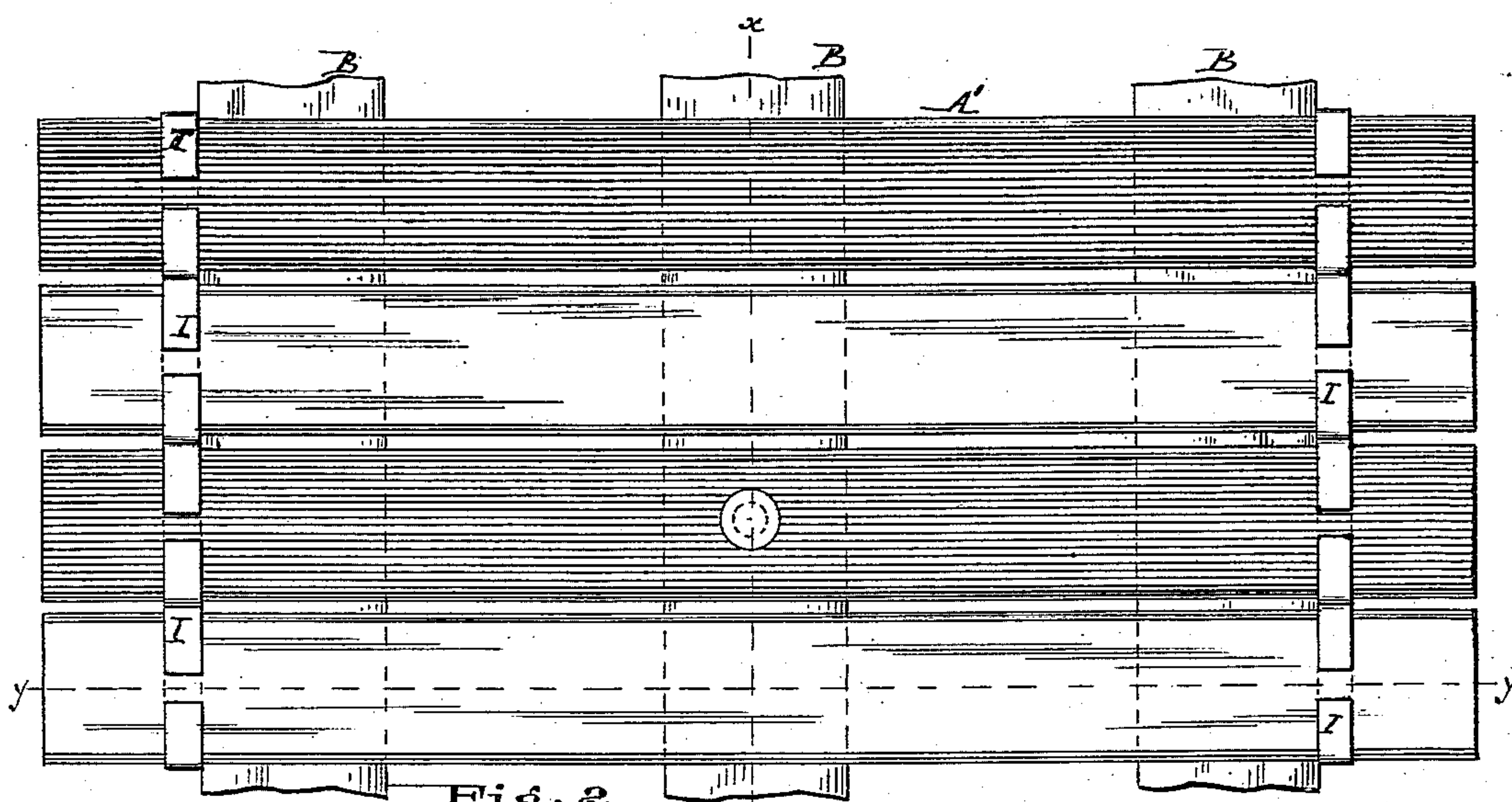
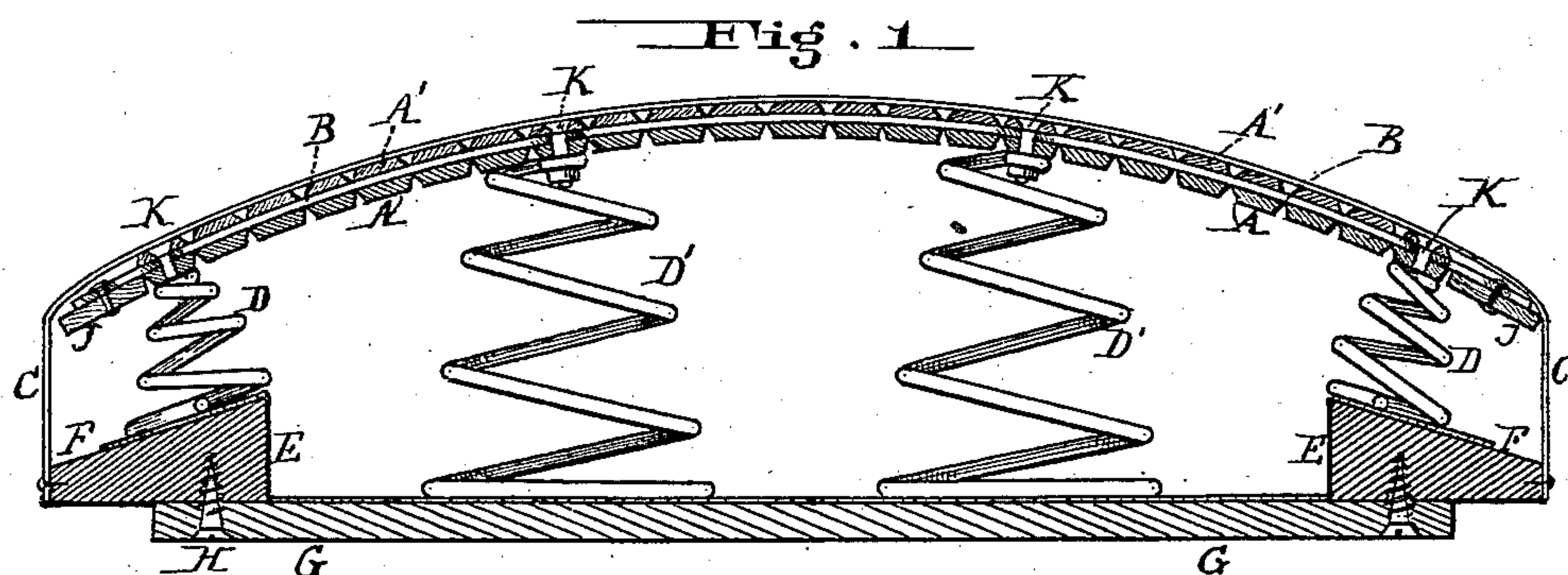
2 Sheets—Sheet 1.

H. B. COBB.

CAR SEAT.

No. 277,114.

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