

No. 844,685.

PATENTED FEB. 19, 1907.

J. B. LONG.  
RADIATOR FOR AUTOMOBILES.  
APPLICATION FILED FEB. 17, 1905.

Fig. 1.

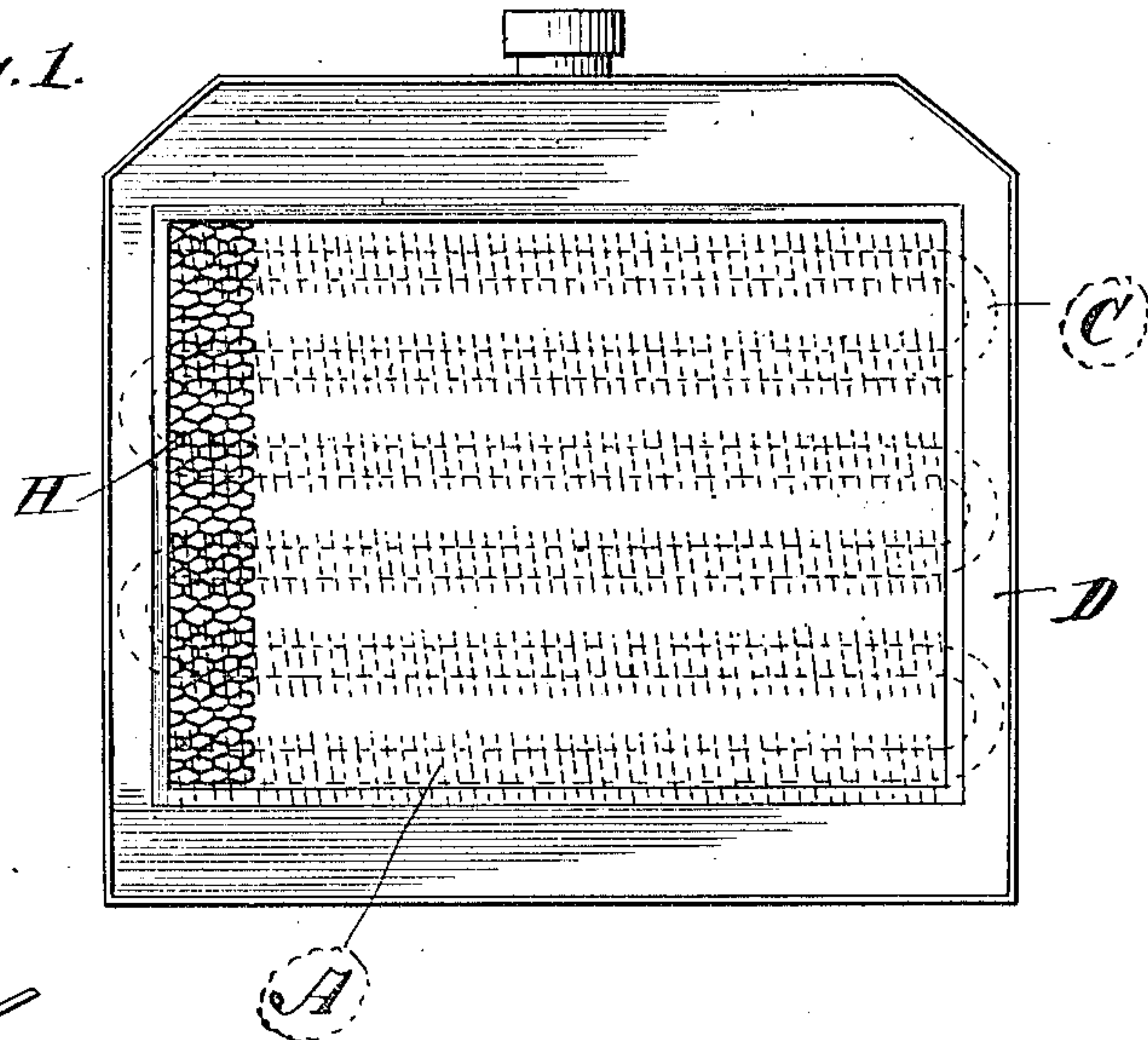


Fig. 2.

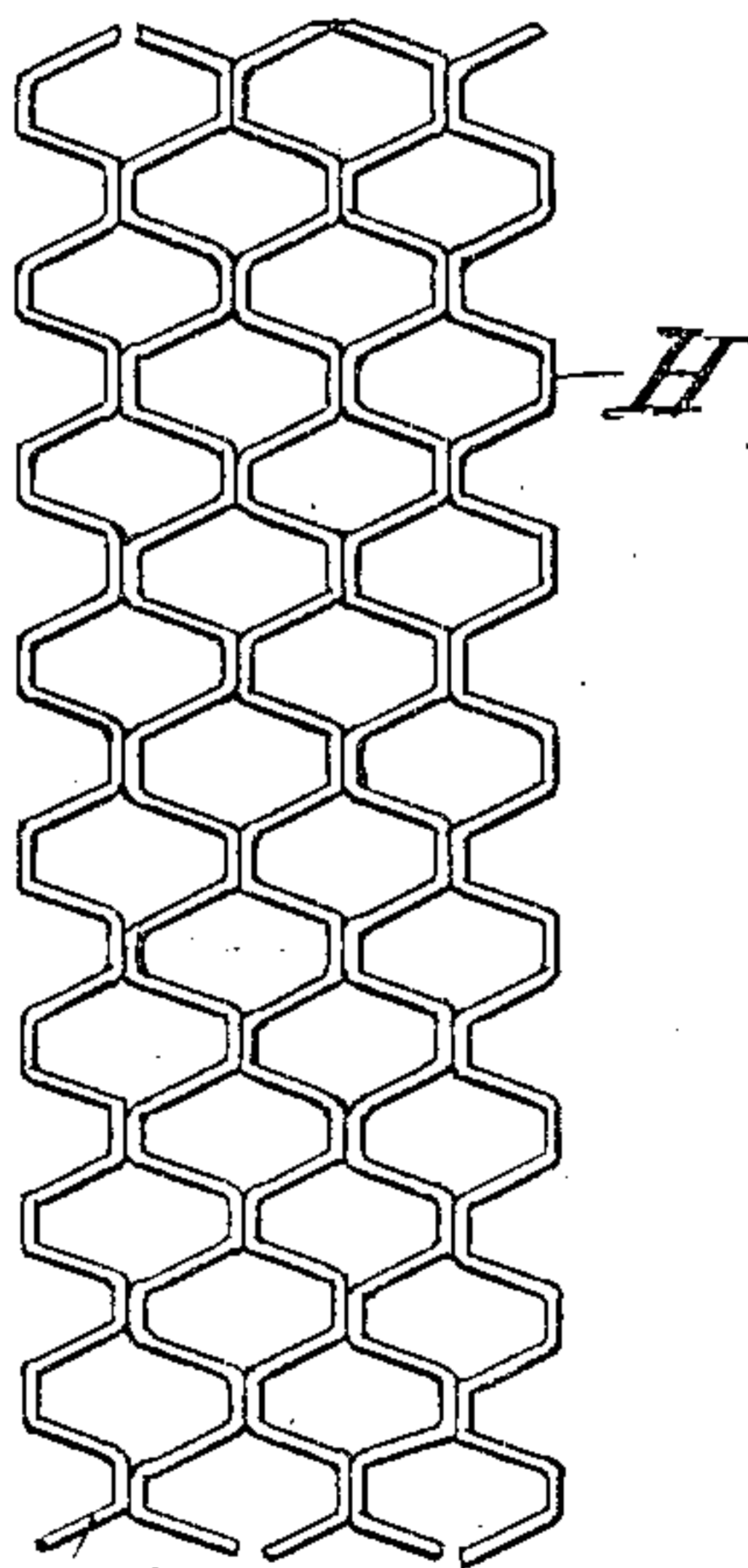
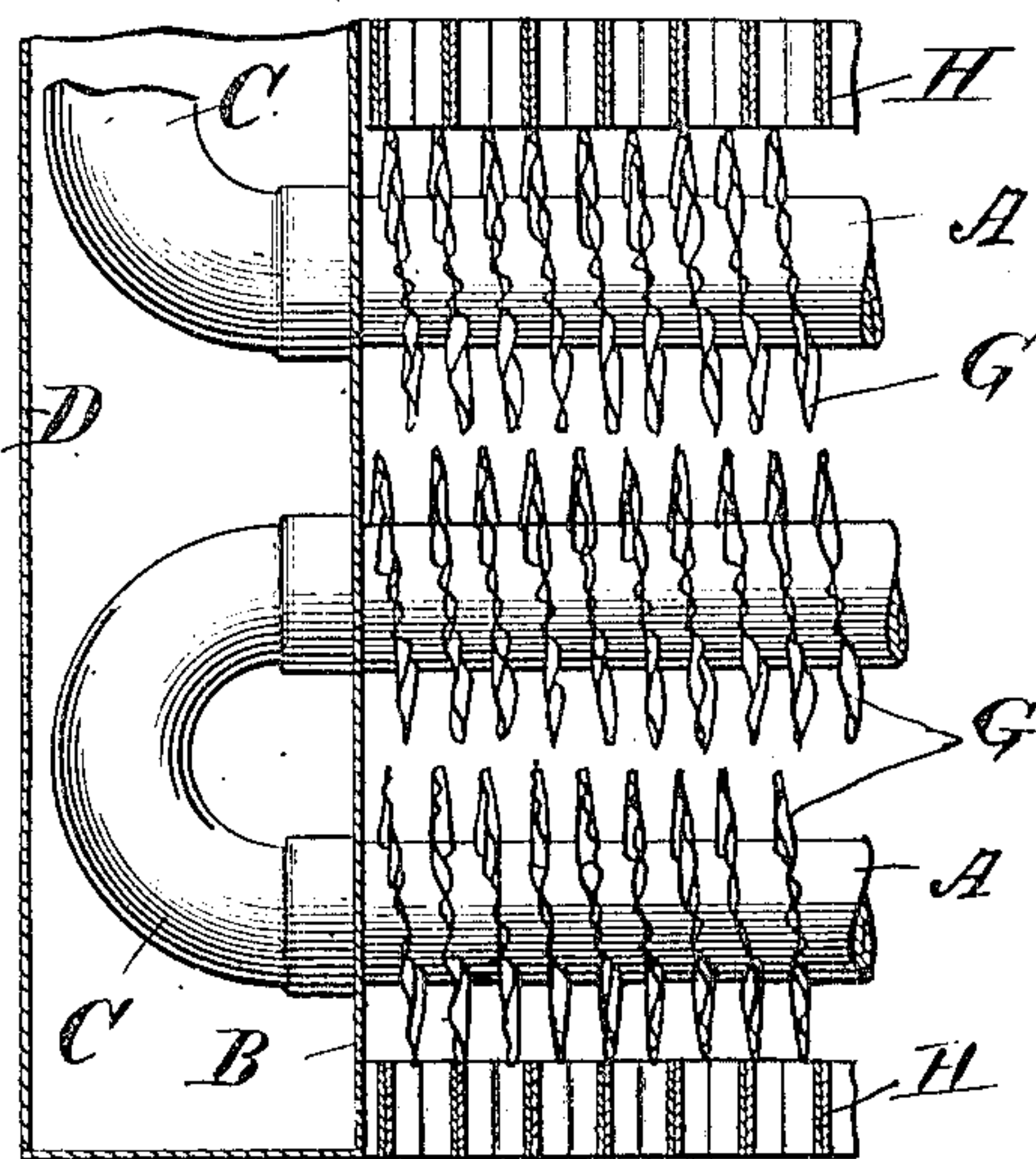


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## RADIATOR FOR AUTOMOBILES.

No. 844,685.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed February 17, 1905. Serial No. 246,110.

*To all whom it may concern:*

Be it known that I, JOSEPH B. LONG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Radiators for Automobiles, of which the following is a specification.

The type of radiator most extensively used consists of what is commonly called a "coil" of tubing having extended radiating-surfaces. The so-called "coil" consists of a number of straight sections of tubing united in pairs by bends so as to form a continuous passage for the circulation of water. The extended radiating-surfaces sometimes consist of disks, sometimes circular and sometimes rectangular, slipped onto the parallel branches of the coil and held by some suitable means at a distance of about one-fourth of an inch apart. In another type of radiator the extended radiating-surface consists of a continuous flange disposed spirally around the tube and provided with radial crimps or corrugations. The diameter of the tube varies, as does also the area of the extended radiating-surface and the distance apart of the disk flanges and the convolutions of the spiral flange. With these details the present invention has nothing to do. On the contrary, it is applicable to tubular radiators generally, and in the present application I have shown it in connection with a tubular radiator having a spiral flange. Tubular radiators of the types mentioned are desirable because they afford for the water an ample passage which is not liable to stoppage by foreign substances in the water or by the deposit of scale on the interior of the tubes. It is found, however, that the flanges, which are usually made of copper of about one thirty-second of an inch in thickness, are frail and bend out of shape by very slight pressure. There is a type of radiator which consists of a great number of flat tubes which are crimped or corrugated transversely, so that when assembled the radiator presents a cellular appearance resembling somewhat a honeycomb. This appearance is preferred by many to the appearance presented by the tubular radiator having flanges of any of the forms above mentioned.

One object of the present invention is to provide a tubular radiator having extended radiating-surfaces in the form of flanges

which presents either at the front or at the back or at both the front and back the appearance of the so-called "cellular" or "honeycomb" radiator.

Another object of the invention is to provide means for strengthening and protecting the flanges of a tubular radiator.

Still another object of the invention is to provide a tubular radiator with the additional radiating-surfaces.

These objects are accomplished by the constructions which are hereinafter described with reference to the accompanying drawing, which is made a part of this specification, and in which—

Figure 1 is a front elevation of a radiator embodying the invention. Fig. 2 is an elevation, full size, of a fragment of the cellular facing shown in Fig. 1. Fig. 3 is a horizontal section, on a somewhat reduced scale, of one end of a radiator.

The straight parallel branches A of the coil pass through plates B and have their extremities connected in series by means of bends C, so as to form a single complete circuit. For the purpose of concealing the bends and presenting an ornamental appearance a housing D is placed over them; but this housing may be omitted without departing from the invention. The extended radiating-surface consists of a spiral flange G, provided with radial corrugations.

In order to attain the objects already stated, a cellular facing H, the construction of which is shown in detail in Fig. 2, is arranged on the front and rear sides of the radiator or upon one side only, as may be desired. This facing is constructed of the aforesaid corrugated strips, so arranged that their summits contact with each other, the whole being secured together by soldering or galvanizing, or by any other suitable means. This cellular facing contacts with the outer peripheries of the flanges and not only protects them from injury but in addition thereto provides extended radiating-surfaces and presents the cellular or honeycomb appearance already described.

I have in the foregoing description referred to the facing as being "cellular" or having the appearance of honeycomb; but I desire to have it understood that any foraminous or reticulated structure used as a facing for concealing and protecting the delicate

flanges which provide the extended radiating-surfaces is within the scope of the invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the class described, a coil having extended radiating-surfaces, and corrugated strips arranged with their summits opposite and in contact with each other; said strips being arranged in contact with the extended radiating-surfaces, whereby they provide additional extended radiating-surfaces and whereby they protect the radiating-surfaces first aforesaid, substantially as described.

2. In a device of the class described, a coil having flanges providing extended radiating-surfaces, and corrugated strips arranged with their summits opposite and contacting with each other, said strips being also arranged in contact with said flanges, at the front of the radiator, whereby they provide additional extended radiating-surfaces and at the same time protect said flanges, substantially as described.

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