To all whom it may concern:  

Be it known that I, WALTER HALPENNY WICKWARE, a citizen of the Dominion of Canada, residing at Ottawa, in the county of Carleton and Province of Ontario, Canada, have invented a new and useful Shutter Mechanism for Automobile Radiators, of which the following is a specification:

My invention relates to radiators for internal combustion engines and more particularly to shutters for regulating the temperature of such radiators.

One object of my invention is to provide a shutter, which may be readily operated to adjust the extent of cooling effected in the radiator.

A further and important object of my invention is to provide a shutter, the extent of the opening and closing of which may be closely adjusted with little effort.

Another object is to provide a shutter which can be readily fitted on to any type of internal combustion engine radiator.

Other objects of and the advantages derived from my invention will be apparent from the detailed description which follows in conjunction with the accompanying drawings in which:

Fig. 1 is a rear elevation showing my invention in place.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a section on line 3—3 of Fig. 1.

Figs. 4 and 5 are elevations showing different positions of the cam mechanism or timing bar.

Fig. 6 is a section on line 6—6 of Fig. 1.

The shutter consists of a frame 1 having relatively wide flange 2, vanes or louvers 3, so constructed that, when closed, they completely cover the front of the radiator, (not shown) with which the shutter is to be connected. The vanes or louvers may be connected in any desired grouping by means of links 4 and 4'. For illustration I have shown two groups, the upper group being connected with a link 4 and the lower with link 4'.

Each vane or louver is pivoted to the bars 6 and 6' and one vane or louver of each group is connected to a shifting mechanism as indicated by means of a pin 7, which for illustration is fastened to the turned down portion 5 of the vane 3.

The shifting mechanism consists of a bar 8 having arcuate guiding slots 8—8 therein, through which slots pins 7 secured to certain of the vanes 3 extend. A parallel plate 9 has formed therein a corresponding number of cam slots 10—10' of such length and configuration as to give the required and properly timed movement of the vanes 3 as the plate 9 is reciprocated vertically. To permit movement of the plate 9 said plate is provided with slots 12—12' which embrace studs 11—11' projecting from the bar 6. These studs guide and limit the vertical movement of the plate 9.

The operation of my invention is as follows:

One position of the vanes is illustrated in Figure 1, where it is seen that the upper vanes are open and the lower closed and that the plate 9 has been moved upwardly the full extent of the cam movement defined by the slot 10. In this position, as will be apparent, the upper portion of the radiator only receives the full cooling effect of the incoming air, while the lower portion, which is inclined to be colder, is protected. If it is desired to subject the radiator to further cooling the plate 9 is moved upwardly as desired to the extent of the slot 10'. When the plate 9 is moved upwardly to the full extent of this slot the shutter is fully open. It will be apparent that any intermediate stage of opening may be effected by limiting the extent of the cam movement. In order to close the shutter the reverse movement is required.

I do not desire to limit my invention to any particular grouping of the vanes or louvers, the grouping shown being for illustration only. If it is desired to operate each vane separately the cam mechanism would be extended to effect the movement of each.

The cam mechanism or timing bar may be operated manually from the driver's seat by a suitable pull rod to the dash of the car, or by a thermostatic, pneumatic, electric or other mechanism but I make no claim to the means for so operating this bar.

What I regard as the important feature of my invention is the operation of the shutter vanes in a selective, time-controlled manner as herein described.

In order that the shutter may be readily placed in any size of radiator, I provide a relatively wide flange which may be cut...
to fit in the radiator hood of any type of car, where it is securely fastened in any desired way.

The device of my invention is sold as an article of commerce, applicable to any suitable radiator for internal combustion engines. The operator on purchasing the shutter, applies it to the radiator and operates it manually or by automatic control as desired.

While I have shown and described in detail a shutter embodying the features of my invention it is of course to be understood that the details of construction and arrangement of parts illustrated may be variously changed and modified without departing from the spirit of my invention.

What I claim and desire to secure by Letters Patent in the United States of America is:

1. A shutter device for automobile radiators having in combination a plurality of groups of vanes, and means for opening and closing said groups of vanes successively, said means comprising a projecting element secured to one vane of each group, and a shiftable operating member having means thereon for engaging directly and successively the said projecting elements.

2. A shutter mechanism as claimed in claim 1 having the group of vanes connected by means of a link.

3. A shutter device for automobile radiators having shutter operating means comprising a bar having guiding slots therein, pins on some of the shutter vanes passing through said guiding slots and a plate having cam slots formed therein and embracing said pins, said slots being so shaped as to successively operate the shutter vanes.

4. A mechanism for operating a shutter as claimed in claim 3 having studs on the bar passing through slots in the plate as and for the purpose described.

5. A shutter device as claimed in claim 3 including a link, connecting selected vanes, the link being operated by the plate.

6. A shutter device as claimed in claim 5 also including a link connecting an upper series of vanes and operated by the plate and a second link connecting a lower series of vanes and also operated by the plate.

WALTER HALPENNY WICKWARE.