

COMMISSIONER'S DECISION

OBVIOUS: Analogous Use of Known Valve.

Since the invention claimed also relates to the use of the "valve trap" shown in the citation to control fluid flow in a piping system, the citation is analogous even though functioning differently for a different purpose or result. The difference, in that the present valve is biased closed against the bias of the vacuum pressure and is opened only by a connecting tube, and is neither opened, nor closed as in the citation, by the fluid flow, was not in the view of the PAB significant. Additional features are "mere design variations".

FINAL ACTION: Affirmed.

This decision deals with a request for review by the Commissioner of Patents of the Examiner's Final Action dated April 3, 1973 on application 079,635. This application was filed on April 9, 1970 in the names of Per Naumburg and Jan O. Norrman and refers to a "Silent Valve."

This application relates to a valve for closing a passage in a connection socket or box, the passage communicating with a suction system. The valve consists of a cylindrically curved valve flap which is pivotable into and spring biased towards a closed position, in which the edge of the valve flap is seated on the correspondingly shaped edge of one end of a cylindrical valve seat through which the passage extends. The valve flap extends obliquely across the valve seat axis and is pivotable, in response to the insertion of the cylindrically connector through the valve seat, into an open position.

In the prosecution terminated by the Final Action the examiner refused the application for lack of an inventive step over the following references:

United States Patents			
1,000,719	Aug. 15, 1911		Cram
3,432,998	Mar. 18, 1969	Cl. 55-367	Downey
Canadian Patent			
465,176	May 16, 1950	Cl. 137-61	Melichar

In the Final Action the examiner stated in part:

The Cram patent discloses a swing check valve having a cylindrically curved valve flap and a cylindrical valve seat. The said valve seat is constructed to be part of a flange, which flange can be connected to any suitable pipe. This valve resembles and operates in the same fashion and therefore will perform the same function as the device disclosed and claimed by the instant application. Although the Cram patent does not disclose connector #9 of the instant application, the construction is such that such a connection can be used with it.

The fact that applicant uses a spring to bias the closure member to the valve closed position is not considered to be of patentable significance because the valve in the cited patent is constructed such that to be operative, it must be installed such that the closure member hinge is at the uppermost part of the closure member when the closure member is in the valve closed position; the valve closure member therefore is weight biased toward the valve closed position. Since the operability of the said valve depends on its closure member being biased to the valve closed position, it is a simple matter for one in the art to increase the bias of the closure member by the addition of a spring or even a counterweight. The addition of a spring to increase the closing bias of the valve member therefore is not considered to be of patentable significance.

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Insofar as the Cram patent being directed to sewer system whereas applicant's device is directed to a pneumatic system, it is pointed out that a valve is a common element in the control of many types of fluent material; the type of valve may be varied to suit the conditions presented by the material requiring control. For example, if, elsewhere within the pneumatic system, a gate valve was required for fluid control it is not unreasonable to assume that one of the numerous types of gate valves now in existence would be utilized rather than devise one specifically suitable for a pneumatic system only.

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In view of the above discussion, it is held that this application lacks an inventive step, and also the matter disclosed and claimed by this application is obvious to one skilled in the art, in view of the teaching of the cited patents, hence the rejection of this application is maintained.

The applicant in his response dated July 3, 1973 to the Final Action stated in part:

Turning now to the prior art cited in the Action under reply, and firstly to the Cram reference, the applicants maintain, before considering this reference in detail, that this reference is not in the same art as the present application and is therefore not properly citable against the present application.

The Cram patent relates to a sewer trap, and it is firmly asserted that it would not be obvious to one wrestling with the problems of vacuum connection sockets for dust collecting systems to refer to literature relating to sewer traps. These two types of apparatus are produced by entirely different manufacturers in entirely different ways, and are intended to perform entirely different functions. Sewer trap manufacturers and vacuum cleaner manufacturers are two separate and distinct trades and are not the same art.

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The sewer trap disclosed in this reference has a valve 12 which is "opened by pressure of the water, indicated by the arrow in Figure 1" (see page 1, lines 93-95). Thus, the weight of the valve 12 must be sufficient to close this valve when insufficient water pressure is acting on the valve, but the weight of the valve must not be too great to prevent the valve from opening when the water pressure increases. Presumably, this in practice will not present a problem, since the valve is intended to act as a trap, i.e. to prevent reverse flow, and is required to open easily in response to flow in the direction of the arrow, and to close in response to reverse flow. The closure of the valve is ensured primarily by the pressure difference of the reverse flow acting across the valve, rather than by gravitational force or any other force.

The operation of the present valve is quite different, and is, in fact, opposite to that suggested by the reference. Thus, in the present case, the pressure difference acting across the valve flap, and which must be securely sealed, acts in a direction tending to open the valve flap.

Consequently, it is clear that although these two valves have a superficially similar appearance, and although they both employ a cylindrically curved valve member, they are, in fact, intended to operate in an entirely different manner.

Since the Cram reference teaches the use of a pressure difference to ensure closure of a valve, this reference would immediately suggest, if taken into account in the design of a vacuum system, that a valve flap should be arranged so that it would be sucked against its seat by the subatmospheric pressure in the system for sealing the system.

The present invention, however, goes directly contrary to these teachings of the Cram reference and arranges the valve flap so that the pressure difference tends to open the flap, instead of urging the flap into sealed relationship with its seat. In this way, the present invention provides a valve flap which can readily be opened by insertion of the connection tube.

The Cram reference, of course, in no way suggests opening of the valve by insertion of any member of any type to deflect the valve from its seat.

On the contrary, this reference shows a strainer 19 which would positively prevent insertion of any connecting tube.

Melichar has been cited as disclosing a spring-biased pivoted closure member.

Of course, valves and flaps springs biased into closed positions are well known for many different purposes. However, it does not follow that it is always obvious to employ a spring-biased valve or flap. Neither Melichar nor Downey anticipates the concept of spring-biasing a valve against the action of a vacuum. It is submitted therefore that the above-discussed features of the invention are in no way suggested by Downey or Melichar, whether considered above or in combination with Cram, and that such combination would not be obvious.

The first question to be decided is what is the scope and contents of the cited prior art.

The primary reference, Cram, discloses a valve in the form of a trap arranged in a pipe for closing a passage therein. This valve consists of a cylindrically curved valve flap which is pivotable into a closed position, in which the edge of the valve flap is seated on the correspondingly shaped edge of one end of a cylindrical valve seat through which the passage extends. The objective given for this invention "is to provide a sewer trap in which a flap valve is so constructed and arranged in a pipe that it can be opened to its full capacity."

The disclosure of the Cram reference, page 1, column 2 line 56, reads: "In traps of this character it has been found difficult to so arrange the valve that it can open the full capacity of the pipe and the object of this invention is to provide a very simple structure of the valve and valve-seat, whereby the valve opens the full capacity of the pipe." And at line 95 the disclosure reads: "(In) Fig. 1, the valve will or can open so that it will be against or parallel with the wall of the pipe as shown in dotted line, Fig. 1, and the pipe will be opened to its full capacity." Also, Claim 1 of this reference reads:

The combination with a pipe, having annular flange at one end, a tubular member secured to the flange and extending within the pipe and spaced a distance from the interior of the pipe and its end having concave and convex surfaces, and a valve hinged at the upper end of the tubular member and having convex surfaces of the seat and concave surfaces corresponding with the convex surfaces.

The Downey reference discloses that it is known to insert a connector

into spring biased valves for a vacuum cleaner bag. The Melichar reference discloses that the use of springs to bias a valve closure member to the valve closed position is well known in the valve art.

The applicant has argued that the primary reference, Cram, "is taken from a non-analogous art." However in our view the problem to be solved in both the reference and this application was similar, that is, an effective valve trap for use in closing a passage in a system of pipes. The fact that one is for use in a fluid system and the other is for use with an air system is of no significance.

The problem facing Cram stemmed from the difficulty in arranging a valve so that it can open the full capacity of the pipe. His objective was "to provide a very simple structure of the valve and valve-seat, whereby the valve opens the full capacity of the pipe." This in our view, is the same problem facing the present applicant.

The applicant has stated that other known valves suffer from the drawback that "the valve mechanism interferes with the free area of the inserting passage..." (page 1 of the disclosure). The applicant also claims that when his valve is in the open position "the axis of curvature of the valve flap is substantially parallel to the axis of the passage..." (page 2 of the disclosure). In the same vein the disclosure, page 3 beginning at line 8, reads: "On the other hand, the general construction permits that such a design of the valve flap would, in the open condition, completely uncover the area of the flow passage thus permitting optimum flow conditions through the box to be obtained. In addition, a construction is obtained which occupies a comparatively short building space."

What we are concerned with are valve traps in a piping system, and both the invention claimed and the reference involve valve traps. Consequently it must be concluded that the Cram reference is in an analogous art, and is a citable reference.

Of interest on this point is the rationale of the court in Pope Appliance Corporation v. Spanish River Pulp and Paper Mills Ltd.,

1927 Ex.C.R. 28 wherein Maclean J. stated:

It is a well settled principle of law that the application of a well known thing to a new and analogous use is not the subject matter of a patent unless there is invention in the application or the mode of application.

Maclean J. also referred to Harwood v. Great Northern Railway (1864) 11 H.L.C. 654 and quoted Lord Herchell: "(T)he mere adaption to a new purpose of a known material or appliance, if that purpose be analogous to a purpose to which it has already been applied, and if the mode of application be also analogous so that no inventive faculty is required, and no invention is displayed in (the) manner in which it is applied, is not the subject matter of a patent."

In that case (Harwood v. Great Northern) the patent covered a "fish plate" for joining together the ends of lengths of railway track. Evidence was presented to show that the kind of joint in question had been previously applied in a number of other instances, among them the joining together of pieces of timber used in bridge building. Even although the patentee brought in evidence tending to show that the stresses in the prior use were somewhat different from those encountered in the railway art, the court held that the application of "fish plates" to railway track was an analogous use, and consequently the patent was invalid.

The applicant has argued that "the operation of the present valve is quite different and is, in fact, opposite to that suggested by the reference." In the Cram reference the valve is opened by the water pressure or flow in one direction, and a back flow of water will cause the valve to close. In the present application the valve is opened by the pressure on the valve flap caused by the insertion of the connection tube, and is held in a closed position by a spring bias action. While there is a slight difference in operation it is not, in our view, significant, since both are used as a valve trap in a piping system. In addition the reference to Melichar discloses the use of springs to bias a valve closure member to the valve closed position. In other words the reference discloses a spring bias valve trap in a piping system.

The question to be decided is whether the application discloses a patentable advance in the art. Amended claim 1 reads:

A vacuum system connection socket for connecting a connection tube to a vacuum system, the socket having a free inlet opening to allow insertion of the tube into the socket through a valve seat into sealed relation with the socket, a valve flap mounted by a pivot for pivotal movement towards the inlet opening into a closed position, in which the valve flap is seated on the valve seat for preventing flow through the inlet opening and in which the valve flap is inclined from the pivot inwardly of the socket to facilitate opening of the valve flap by the insertion of the tube, and a spring biasing the valve flap towards the closed position.

From a consideration of the subject matter of claim 1 it is apparent that the reference does not show a free inlet opening. However, the Cram reference states that a strainer (19) is preferably used on the upstream face of the valve. In any case the deletion of an element together with its corresponding function is not an inventive step. The claim also refers to "a spring biasing the valve flap," which is not shown in the reference. This difference, however, was discussed previously. Furthermore it is shown in the Melichar

reference, and is therefore a common expedient in the art. The subject matter of claim 1 is substantially shown (with the exception of the above discussed points) in the Cram reference. Therefore, in our view, this claim lacks patentable subject matter.

Claims 2 to 5, which depend on claim 1, add additional features, such as a flange, reference to the curvature of the valve flap, and other design features. Accordingly, our comments in respect to claim 1 apply equally to claims 2 to 5.

Amended claim 6 reads:

A vacuum system connection socket and connection tube, wherein the socket has a sleeve having a valve seat formed at one end of the sleeve and extending from a free inlet opening at the other end of the sleeve to allow insertion of the tube into the sleeve through the valve seat, the exterior of connection tube being shaped to conform snugly to the inner surface of the sleeve and thereby to fit in sealed relation with the socket around the inlet opening for sealing abutment with a projection extending around the exterior of the tube to limit the insertion of the tube through the inlet opening into the sleeve, a valve flap mounted by a pivot for pivotal movement towards the inlet opening into a closed position, in which the valve flap is seated on the valve seat for preventing flow through the inlet opening and in which the valve flap is inclined from the pivot inwardly of the socket to facilitate opening of the valve flap by the insertion of the tube, and a spring biasing the valve flap towards the closed position.

This claim is partially similar to claim 1, but emphasizes the snug fit of the connection tube to the sleeve "to fit in sealed relation with the socket around the inlet opening...." This is a relationship which must exist if an air pressure system is to work. An abutment is also used to limit the insertion of the tube through the inlet opening. These additional features beyond those covered in claim 1 are mere design variations. Therefore, since claim 1 is deemed to be unpatentable, claim 6 in turn is unacceptable.

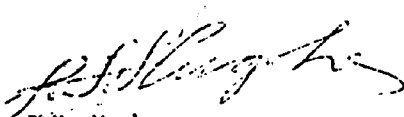
Claims 7 to 10 are substantially the same as claims 2 to 5, but are depended upon rejected claim 6. Accordingly, our comments in respect to claims 1 and 6 apply equally to claims 7 to 10.

Since there is no other subject matter disclosed in the application it follows that the application as a whole should be rejected.

The applicant has mentioned that this device has been patented in a number of other countries including the United States. While this is of interest it is noted, however, that the primary reference, Cram, was not considered during the prosecution, at least, in the United States Patent Office.

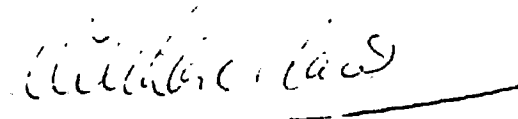
In view of the prior knowledge disclosed in the art, and in view of the similarity of purpose and mode of application of the applicant's invention and the prior art (vide, Pope Appliance v. Spanish River, supra.) the Board is satisfied that the applicant has not made a patentable advance in the art. Thus, while the idea might be creditable it lacks the prerequisite of inventive ingenuity. It comes within the category of a matter to which the Supreme Court referred in Crossley Radio v. Canadian General Electric (1936) S.C.R. 551 at 557, when it stated: "...we do not think the inventive element necessary to constitute subject matter is made sufficiently evident."

The Board therefore recommends that the decision of the Examiner to refuse the application as lacking patentable subject matter be affirmed.


J.F. Hughes,
Assistant Chairman,
Patent Appeal Board.

I concur with the findings of the Patent Appeal Board. Accordingly,
I refuse to grant a patent on the subject matter of this application.
The applicant has six months within which to appeal this decision
under the provisions of Section 44 of the Patent Act.

Decision accordingly,

A handwritten signature in cursive script, appearing to read "A.M. Laidlaw", is written over a horizontal line.

A.M. Laidlaw,
Commissioner of Patents.

Dated and signed in
Hull, Quebec this
1st day of March, 1974.

Agent for Applicant

G. Ronald Bell & Company,
Ottawa, Ontario.