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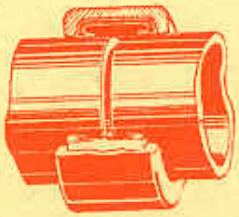
VICTAULIC

PIPE-JOINTS

(Hele-Shaw & Tribe system)



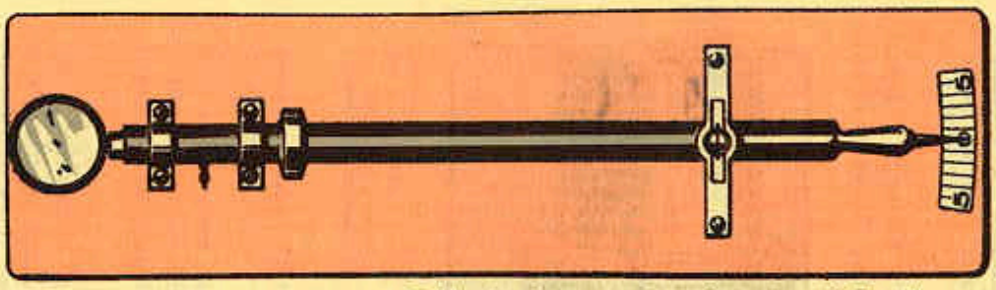
The
VICTORY
PIPE JOINT Co. Ltd.

28 Victoria Street,
LONDON . . . . S.W. 1.

Telephone: Victoria 6888.
Telegrams: "Victaulic Vic London."

Cables: "Victaulic London." Bentley's Code.

Victaulic 75th Anniversary 1921-66
Facsimile of 1921 catalogue



Model under air pressure showing that a pipe with Victaulic joints can be flexed in any direction without leakage. With the Victaulic system it is not necessary to align adjacent pipes.

The Victaulic catalogue

The Victaulic 1921/22 catalogue (64 pages) with an explanatory introduction by Captain H. Riall Sankey, C.B., C.B.E., etc., etc., President of the Inst. of Mech. Engineers, contains illustrated charts giving details and dimensions of all sizes of the various types of Victaulic leak-proof pipe-joints for use in the ordinary way in place of the conventional flange, spigot and socket, etc., joints. It also gives details of many special applications of the Victaulic system which are of vital interest to the specialist in practically every branch of engineering. The catalogue will be sent on request to all who write on professional note heading or send business card.

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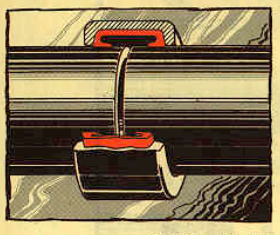
Telephone : Victoria 6888. *Telegrams : "Victaulic Vic. London."*

THE VICTAULIC EXHIBIT AT OLYMPIA

EXHIBITS AS FOLLOW:—

(1) "Victaulic" leak-proof flexible joints, for use with water (town supply or high pressure) oils, compressed air, gases, steam, petrol, and practically all other fluids, suitable for all kinds of metal and concrete pipe for pressure conditions



The "A" type (floating) joint used for low pressures or for buried or anchored pipes.

ranging from any degree of vacuum and zero to 10 tons per square inch pressure.

(2) A full-size model of a length of 25-in. diameter pipe, fitted with "Victaulic" "A" type joints (short lengths of pipes are shown, owing to lack of space) and showing the manner in which each individual pipe length is anchored. There is a gap of ¼-in. between each pipe length; so that any expansion owing to rise of temperature affects only each individual length, and has no effect upon the line as a whole. Sections of the lowest joint may be removed to display the "Victaulic" inner ring.

(3) A short pipe line of 3½-in outside diameter fitted with "A" type (floating) joints. To demonstrate ease of assembly of the joint, the line will be drained and a short length of pipe removed and replaced on request, the operation occupying only a matter of seconds.

(4) A short pipe line fitted with "B" type (located) joints (2-in. standard iron pipes). Demonstrations will be given as stated in preceding paragraph.

The stop valves used on both these pipe lines are fitted with "Victaulic" leak-proof gland rings.

(5) A model illustrated overleaf intended to demonstrate the flexibility and expansibility of the joint. The model demonstrates an important feature of the "Victaulic" joint, viz. :—that it is not necessary accurately to align adjacent pipes to ensure a leak-proof joint.

Special Note

The different types of Victaulic joints will be explained at intervals during the Exhibition by means of demonstration models which will be fitted to a length of pipe, and dismantled, for the purpose.

The Company's Civil Engineers, Mr. Reg. Brown, M. Inst. C.E., M.I.M.E., President Inst. Mun. E., etc. and Mr. Chas. Musker, M.I.C.E., M.I.M.E., will be present at the Stand during the Exhibition for the purpose of discussing applications of the Victaulic system with joint users.

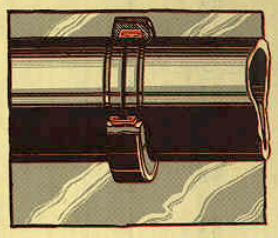
(6) A full-size model of a section of the "Duct Keel", the invention of Mr. E. F. Spanner, to demonstrate the small diametrical space occupied by the "Victaulic" joints, as compared with standard flange joints.

(7) A full-size model of a section of a tunnel containing two pipe lines for conveying oil, fitted with "A" type "Victaulic" joints as now being installed in Morocco.

(8) A high pressure "Victaulic" joint capable of maintaining a pressure of 10 tons per square inch.

(9) A model to show the comparative sizes of "Victaulic" joint and a standard cast-iron hydraulic flange joint for pipes of equal diameter. The "Victaulic" joint shown is capable of sustaining a pressure several times greater than the flange joint.

(10) A small "Victaulic" joint holding a vacuum, the joint being



The "B" type (located) joint which secures the pipes positively against end displacement under pressure

a "Victaulic" "B" type pressure joint.

(11) A sectional model of a stop valve fitted with the "Victaulic" gland rings in place of the usual stuffing box.

(12) "Victaulic" leak-proof rings of all types and sizes, together with housings of several types and dimensions, coloured drawings, etc., etc.

GUARANTEE. Victaulic joints are guaranteed against leakage for periods up to 25 years depending upon the application. Terms of guarantee will be supplied on request.

Stand 119, F Row

(In the centre of the main hall)

VICTAULIC
PIPE-JOINTS

Abridged description of their construction and application

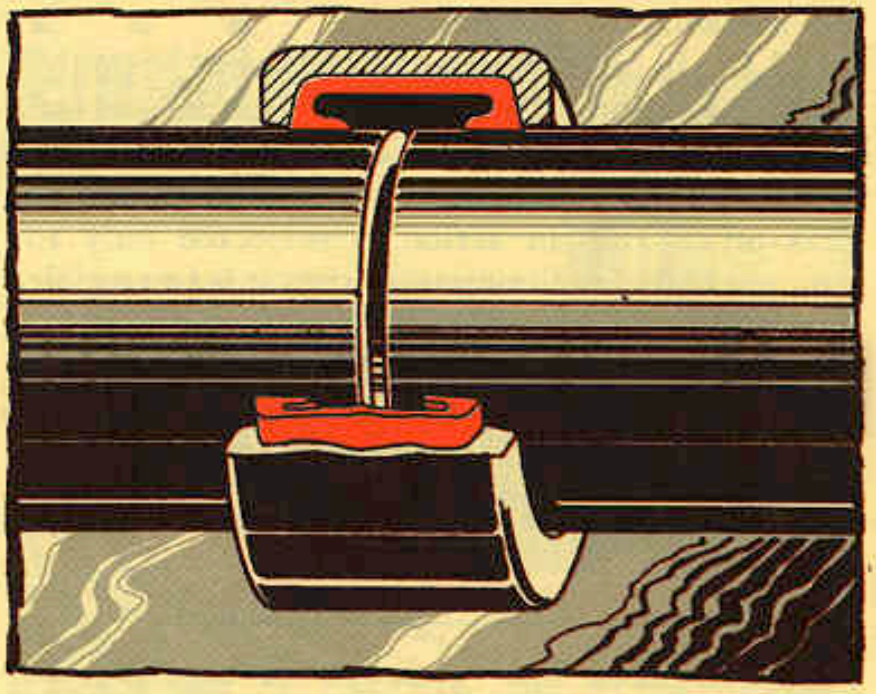
The

"U"-washer,

the most simple hydraulic sealing device, has survived throughout generations of usage on account of its efficiency and its properties of self-tightening.

The Victaulic Joint embodies the self-sealing effect of the "U" washer without its shortcomings; it is remarkable in making a perfect seal against any pressure from zero upwards and also against vacuum.

Moreover, it is naturally flexible and makes provision for expansion and contraction; it is neat and does not necessitate expensive machining or screwing of the pipes.



A perspective view showing a FLOATING TYPE "A" joint in position on the pipes. The leak-proof ring is sectioned in orange colour and the joint is shown partly sectioned and partly broken in order to make clear its construction.

THE VICTAULIC PIPE-JOINT

CONSTRUCTION.

IN the illustration is shown a Victaulic pipe-joint for a 4 inch pipe; this type varies but slightly in detail design as the sizes advance to 72 inches and above.

THE joint is shown in position joining two lengths of pipe which—it will be seen—need

no screwing or flanging. ✱ ✱ ✱ ✱

HELD in its retaining shell, the Victaulic flexible leak-proof ring has two inturned conical lips, which grip tightly on to the pipes, and grip harder as the pressure rises. The Victaulic leak-proof ring in action is subjected only to compression; as the pressure rises it is impossible for tension to be exerted upon it and rupture to occur. Consequently the determining factors as to the strength of the joint are the strength of the outer shell and of the pipe itself.

THE JOINT IS STRONGER THAN THE PIPE.

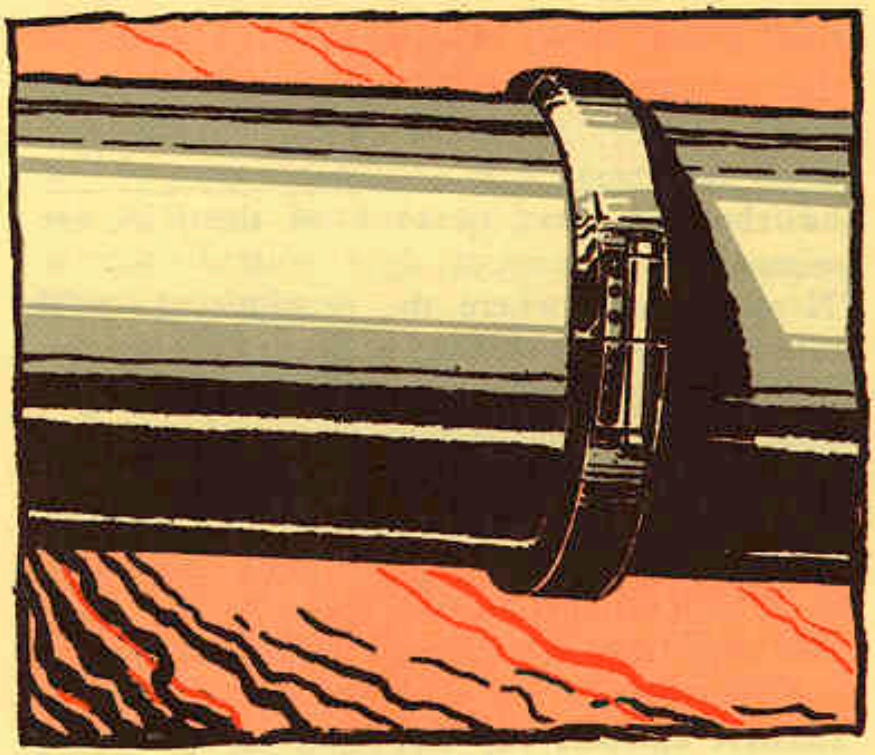
THE inturned lips—a design developed from the everyday "U" washer—exercise an initial grip on the pipe as they are placed in position, the joint is

LEAK-PROOF AT ZERO.

There is a further feature—described fully in the Victaulic Catalogue—which gives rise to a perfect self-intensive sealing action at negative pressures. The joint is

LEAK-PROOF AGAINST A VACUUM.

THE flexible leak-proof ring permits the introduction of a small clearance between the



As pipe sizes increase, so does the Victaulic joint become relatively smaller. The illustration shows a Victaulic joint on a 42" pipe line.

housing and pipe, so as to give slight angular flexibility. Pipes with the conventional type of joint are so rigid as to burst the bolts or break the joint when a subsidence occurs in the ground in which they are buried, or when they are subjected to heavy vibration. In the case of concrete pipes, with their strong rigid grouted joints, this is particularly evident: in the event of a subsidence the concrete pipe—weaker than its joint—fails by cracking. *The flexibility of the Victaulic joint* makes the difference between

failure and success. ✱ ✱ ✱ The pipe is

UNAFFECTED BY SUBSIDENCE OF THE GROUND,

and the leak-proof qualities of the joint are unimpaired.

IN applications where the proximity to tidal waters gives rise to shifting or flooded ground this feature is of great value, for additional difficulty is experienced in anchoring an empty pipe against its own buoyancy, and is usually met by the application of heavy concrete emplacements in order to prevent strain on the pipes and joints. In such an installation, the Victaulic joint confines the stress within each individual length; it renders possible the use of concrete pipes.

THEIR extreme rigidity, accentuated by the unyielding nature of the joints, renders the ordinary system of concrete pipes impracticable where there is a possibility of movement, flooding or subsidence.

THE Victaulic joint, with its flexibility, alters the whole outlook on the concrete pipe system. Moreover, it presents a ready means of "breaking joint" for cleaning, the replacement of a section, or the installation of a junction piece, with far less work or cost than in the case of the unaccommodating grouted jointing.

VIBRATION.

The flexible nature of the Victaulic joint renders

it proof against vibration. On a steam hammer where it had previously been necessary to overhaul the joints every week, the Victaulic joint is still in perfect condition after a year's use, during which time it has been subjected continually to intense vibration, high temperatures and varying steam pressures.

EXPANSION.

THE flexibility of the Victaulic leak-proof ring allows for expansion: each individual length of pipe is free to expand separately. Victaulic installations are ideal in this respect, for in many cases the conventional type of coupling calls for an expansion joint at regular intervals, and the whole of the intervening pipe work must be free to "live." The shortcomings of such a system may be seen in hillside pipe lines in hot climates: the expansion becomes considerable during the day with a corresponding contraction during the cold night.

WITH a Victaulic hill-side installation, each individual pipe-length is anchored only at mid-length: it forms a separate unit and is free to expand at both its ends, each joint permitting expansion without any movement whatever at the point of anchorage.

Pipes for use with Victaulic joints are free from flanges or even screw-threads: they are accepted for freight and customs duty as "raw material."

Moreover they may be stacked into a very small space, and where as is usual several sizes are needed, they may be nested one within the other. There is therefore a

SAVING IN FREIGHTAGE COST.

In assembling the joint in place no tool is generally necessary but a hammer; in a few sizes a light spanner only is needed. Not only does this mean a great saving of time and money in fitting, and the successful employment of unskilled labour, but also far less space in which to operate. The necessity for access to the nuts of the ordinary flange-joints, and the space for using long spanners in screwed joints, is extremely wasteful in those installations where space is valuable.

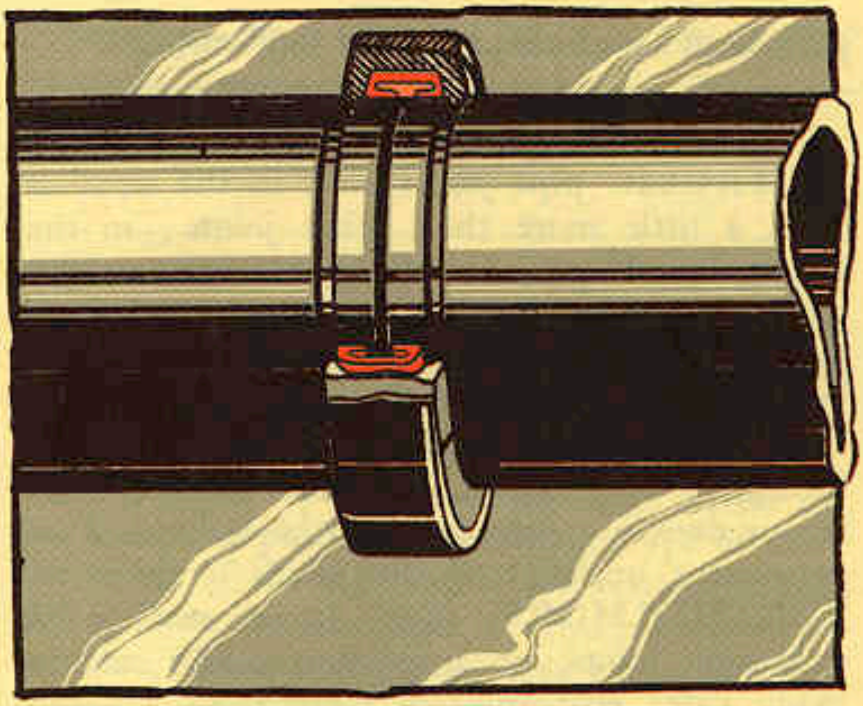
IN one installation—in the East—the use of Victaulic pipe-joints on an oil-pipe line effected a great saving in

THE COST OF A TUNNEL

through which it passed. The use of the joint originally contemplated would have necessitated the removal of over twice the amount of rock, at vast expense.

TIME SAVED IN INSTALLING.

IT is at once apparent that the nature of the



A perspective, part sectional view of the LOCATION TYPE "B," which positively prevents separation of the pipes. The joint also permits flexibility and expansion, it is used for high pressures and where a surface line is entirely unanchored.

Victaulic joint is such as to effect a considerable saving in time spent on installing: in actual practice the saving is even greater than is generally anticipated.

IN a benzine pumping line 10-inch diameter, for one of the leading oil companies, the very first Victaulic joint on the job was fitted in 1½ minutes—by a fitter who had previously been fitting the flanged type, without any previous instructions or practice.

THE time taken over flanged joints of this size,

year in and year out, averaged half-an-hour.

IN FIRST COST

VICTAULIC pipe joints cost, in the smallest sizes, a little more than other joints; in the larger sizes there is a saving, not only on the joints themselves, but through the absence of expansion joints, the simpler installation permitted by their flexibility, and the saving in freight.

THERE is a great saving in time spent in fitting, and moreover, the use of unskilled labour does not detract from the leak-proof or permanent qualities of the joint.

FURTHERMORE there is a saving on expansion joints, on inspection covers and in many cases economies in mounting. Upkeep cost is less, not only is there no fracture of pipe or joint due to shifting of soil or such external influences, but there is no need to keep on remaking joints.

ON ALL piping systems, and particularly those where the pressure or temperature varies from time to time, the use of the Victaulic joint not only ensures a great saving in installation and upkeep, but also functions to a degree of perfection unattainable in any other type.

FOR ANCHORED PIPES.

In a great many cases where longitudinal displacement of the pipes is provided against, such as in the case of pipes buried in the ground, the

Floating type "A" joint, described and illustrated on pages 3 and 4, is all that is required to make a perfect leak-proof, flexible and expansion joint.

WHEN PIPES ARE UNANCHORED

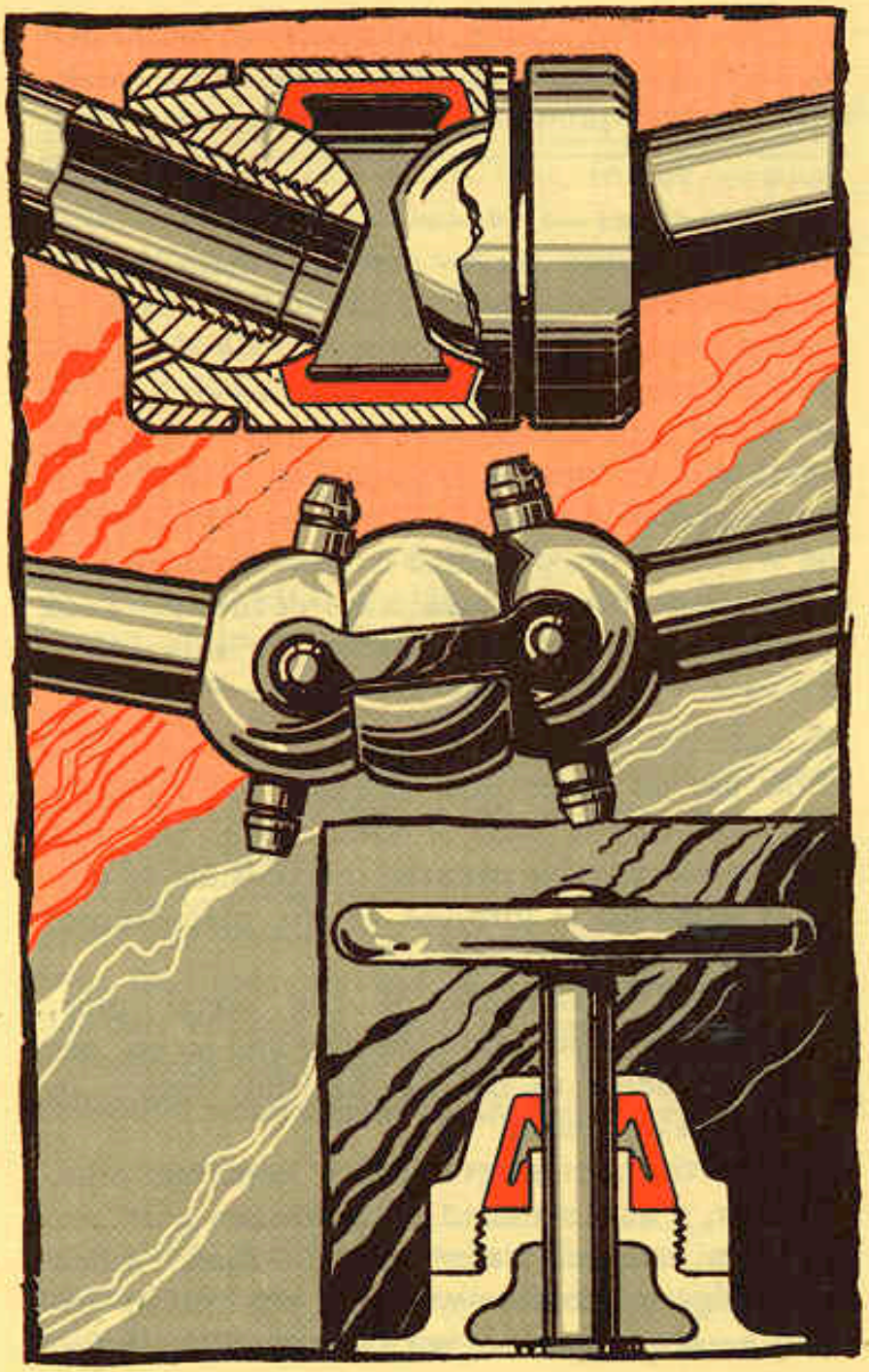
or for use with high pressure there is the Victaulic *Location type* "B", shown on page 9. In this a split steel housing imprisons the leak-proof ring and engages freely in shallow grooves cut in the pipe-ends. The split-halves are held together by a tapered retaining ring, driven on and locked in position. With this type of joint the whole of the pipe-line is self-contained and independent of anchorages: it is free to expand and contract, flexible and unaffected by subsidence.

FOR WATER UP TO ANY PRESSURE.

FOR use on water pipe systems, the Victaulic leak-proof ring is made of finest rubber, the most durable and suitable material it is possible to use. Great attention is directed to the manufacture of these leak-proof rings.

HITHERTO the life of the metal pipe, shortened by incrustation, rusting and so on, has been considered to be the limiting factor in the life of a system.

WITH the almost everlasting concrete pipe, however, a new standard of permanence is set. Whereas rubber water joints — made when knowledge of rubber-working was in its infancy — are regarded with satisfaction when



Showing the universal flexible joint, and the link type flexible joint in which frictional resistance to flexing at high pressures is reduced to a minimum. Normally alternate pairs of links are set in planes at right angles, giving universal flexibility, but when resistance to lateral displacement is desired, alternate pairs are changed over on to their other trunnions, so that the flexibility is confined within one plane. Inset, the Victaulic gland ring applied to a screw-down valve.

found to be in

GOOD CONDITION AFTER FIFTY OR SIXTY YEARS,

it is our desire that the Victaulic joint—prepared with painstaking care and the application of the most recent developments—shall approach the concrete pipe in its qualities of permanence.

FOR BENZOL

a special material known as *Victaulite* is employed which successfully resists deterioration and maintains an absolutely leak-proof joint.

FOR OIL, STEAM AND CHEMICALS

different varieties of *Victaulite* are used. Victaulic joints have been supplied to resist milk of lime, ammonia gas, hydrogen sulphide, cyanides, hydrocyanic acid gas, sulphuric compounds and various chemicals and impurities, in some cases alternating from one reagent to another.

INCRUSTATION

and rust necessitate, in certain circumstances, the insertion of special inspection lengths, carrying covers which permit examination or cleaning. NOT only does this practice introduce a further variety in types of pipe lengths, but in addition, an awkward joint is introduced. With the Victaulic system, the flexibility of the joint permits the pipe ends to be swung clear of

one another. In all cases the removal of a length can be effected without disturbing the remainder of the line. Perfect inspection is possible and no variation in the pipe section is necessary. IN concrete pipes again, which usually become one unified length when the joints have been made, this feature is invaluable.

FLEXIBLE JOINTS.

FOR applications where considerable flexibility is needed there are two types of Victaulic joint. IN each case the Victaulic leak-proof ring is employed, but the joints differ in their application. Where the chief need is universality, the *Spherical Type* is used. Where, however, effortless flexing is required, the *Link* type, which can be locked against lateral displacement, should be specified.

GLAND RINGS.

A further development of the Victaulic leak-proof ring is its application to steam and water valves: the sealing effect is far superior to that of the ordinary stuffing box and no adjustment is needed. For such applications gland rings are designed to suit users' requirements.

TEMPORARY PIPE-LINES.

For temporary pipe lines, Victaulic joints offer additional advantages; their flexibility permits them to follow the contour of the land, or obstructions, without levelling up or setting the pipes.

ADVICE ON INSTALLATIONS.

Our technical staff is at the service of engineers who wish to avail themselves of our experience in the installation of Victaulic joints. Those whose piping problems present especial difficulties, or who are in doubt on any point, are particularly invited to discuss the matter with our engineers.

STANDARD SIZES.

In our large catalogue are given the leading dimensions and working pressures for a wide range of Victaulic joints, for use with various fluids and in different applications.

GENERAL APPLICATIONS.

All pipe users, from the engineer installing an oil pipe-line down to the repairer who lacks the screwing tackle for the old type screwed-on joint, will find a Victaulic joint to suit every requirement

GUARANTEE.

Victaulic joints are guaranteed against leakage for periods up to 25 years depending upon the application. Terms of guarantee will be supplied on request.

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PIPE-JOINTS