

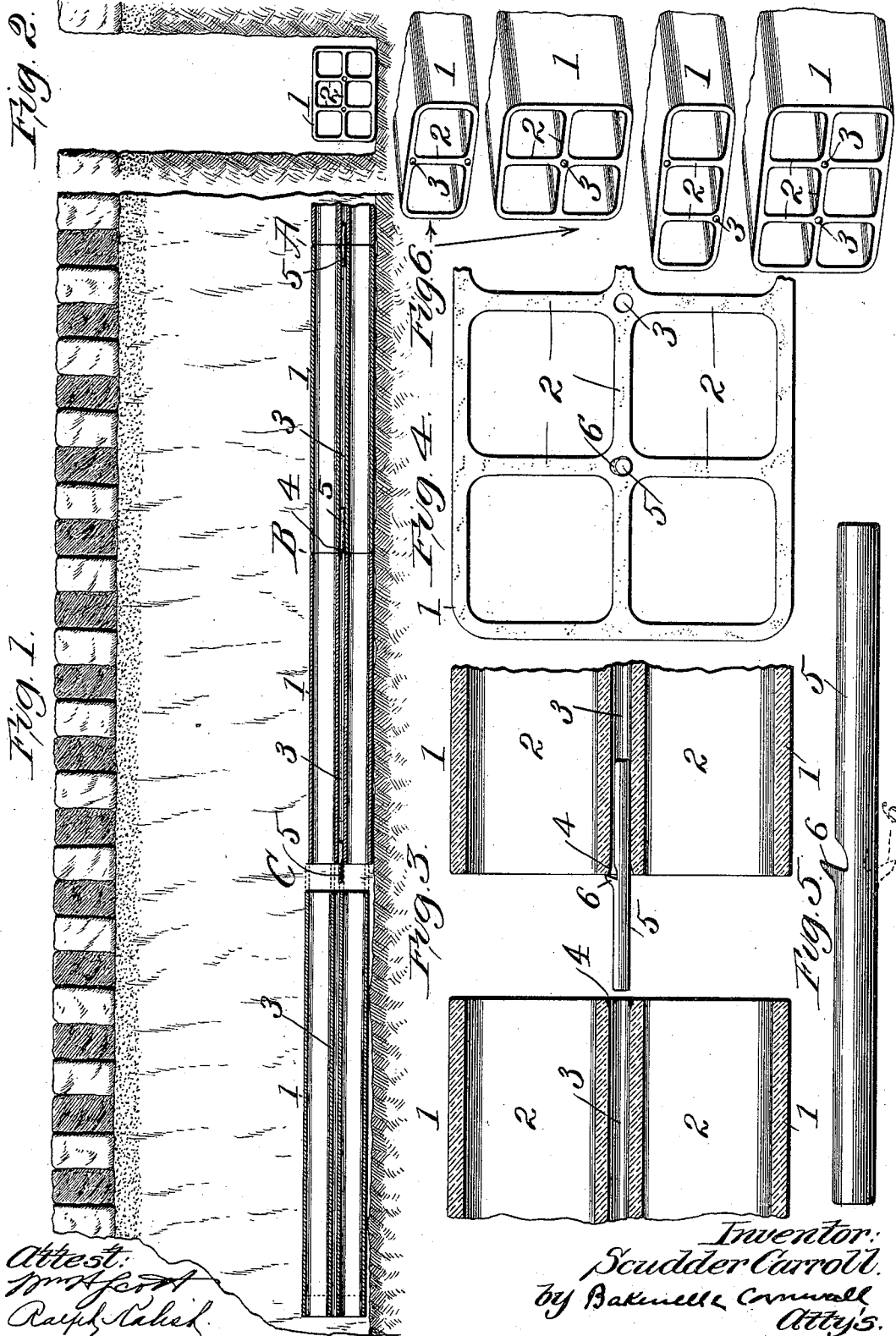
**No. 616,895.**

**Patented Jan. 3, 1899.**

**S. CARROLL.**  
**DOWEL FOR CONDUIT PIPES.**

(Application filed Oct. 8, 1898.)

(No Model.)



# UNITED STATES PATENT OFFICE.

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## DOWEL FOR CONDUIT-PIPES.

SPECIFICATION forming part of Letters Patent No. 616,895, dated January 3, 1899.

Application filed October 8, 1898. Serial No. 693,034. (No model.)

*To all whom it may concern:*

Be it known that I, SCUDDER CARROLL, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Dowels for Conduit-Pipes, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical sectional view of several sections of conduit-pipe arranged in a ditch or excavation, illustrating an old and well-known method of laying the same. Fig. 2 is a vertical cross-sectional view of a ditch or excavation, together with an end elevational view of a conduit-pipe arranged therein, the same being a companion view to Fig. 1. Fig. 3 is an enlarged longitudinal vertical sectional view of the ends of two conduit-pipes, showing my present invention in position. Fig. 4 is an end elevational view of a portion of a conduit-pipe, showing my invention in position. Fig. 5 is a side elevational view of my improved dowel-pin employed in carrying out my invention; and Fig. 6 is a perspective view of a group of several styles of conduit-pipes, all of which are now in use and can also be used with my invention.

This invention relates to a new and useful improvement in dowel-pins employed in constructing conduits, which are formed by placing sections of conduit-pipes end to end in a ditch or excavation, the dowel-pin being used at the joints formed by the abutting ends of said sections for preserving their perfect alignment. The exact manner in which this co-operation of the dowel-pin and the conduit-sections is accomplished will be hereinafter described.

The object of this invention is to form a dowel-pin to be used in conduit construction which will be simple, inexpensive, and practical and one which when in position in the end of a section of conduit-pipe will not become disarranged by the laying of the next adjacent section of pipe in position there-against, and when my said dowel-pin is in

its proper place, connecting two sections of conduit-pipe, longitudinal movement of the dowel-pin is impossible.

The essential feature of this invention resides in the form of the dowel-pin, which is provided with a bur or stop preferably located upon and rising from the periphery of said dowel-pin about midway its length. Various means may be employed for forming this bur or stop, as is obvious; but for simplicity and economy I prefer to form said stop by making a cut at a suitable angle relative to the axis of said dowel-pin and then bending the material between said angular cut and the outer face upwardly a suitable distance, or, if desired, two or more of these burs may be made, as is illustrated in dotted lines of Fig. 5. The most practical way of forming this bur is to firmly secure the dowel-pin in a vise and raise said bur by a cold-chisel and hammer, as will be readily understood.

Heretofore the method of laying conduits formed of many sections of conduit-pipe has been to simply place short smooth bars of metal in the abutting ends of said sections, said bars of metal fitting in the ends of longitudinal holes formed throughout the length of the sections. When the first section of pipe has been placed in proper position, the dowels are inserted about half-way their length in the holes of said section, and the next section is brought into position, so that its dowel-holes are in proper alinement with the protruding end of the dowel of the first section, when it is moved longitudinally until the ends of the two sections abut, (see Fig. 1,) and if this joint has been carefully made and the dowel has remained in its extended position the dowel will have then performed its designed function—that is, to keep the sections in perfect alinement, as is shown at A, Fig. 1. This method is, however, unreliable in that unless great care has been taken in making the joint an imperfect alinement results, as at B, Fig. 1, whereby the dowel is driven clear into one section by the abutting end of the other section, as shown at C, Fig. 1, where it will be seen that the dowel performs no function whatever. If the fault is discovered, these sections have to be removed in order to take out this dowel, and again the

same course and uncertainty have to be gone through with.

From the above it will be seen that considerable time is lost, and even when it is believed that a true joint has been made it is only a surmise and can therefore never be accurately relied upon.

In the drawings, 1 represents a conduit-pipe of ordinary construction, preferably formed of a rectangular shape and divided into several compartments by suitable partitions 2. Most generally these conduit-sections are formed with two, three, four, or six compartments, as shown in Fig. 6.

3 indicates continuous longitudinal holes formed, preferably, in the stock of material at the juncture of the vertical and horizontal partitions 2, which divide the conduit-section into its compartments. This, however, is immaterial, as these holes 3 can as well be formed at the juncture of the sides of the pipe with the partitions, as is obvious. As stated, these holes 3 are continuous throughout the length of the section of pipe, for the reason that these sections frequently have to be cut into two or more shorter sections, and if the hole 3 were not continuous throughout its length there would be no dowel-holes present at the cut faces. Otherwise this hole 3 would only have to be in the ends of the section and as deep as half the length of the dowel. Preferably these holes 3 are bell-shaped or flaring at their outer ends, as indicated at 4, the object being to guide the dowel-pin into the hole 3, as will be readily understood.

5 indicates my improved dowel-pin as an entirety, which is preferably formed of a cylindrical bar of metal and in practice is about six inches long and three-eighths of an inch in diameter. This dowel-pin is provided at a point about midway its length with a bur or projection 6, said bur being preferably formed as hereinbefore described.

When it is desired to lay a conduit formed of sections of pipe, using my improved dowel-pin in connection therewith, the first section is laid in the usual manner, the dowel-pin being slipped into position in the dowel-hole 3 therein. (See Fig. 3.) This position of the dowel-pin is determined by the bur or projection 6, which only permits the dowel to be inserted about half its length, said bur then contacting with the end of the section and arresting further movement thereof. The next section of pipe is then brought into position and slid longitudinally, whereupon if the dowel-holes in the two sections register the protruding end of the dowel-pin will enter the dowel-hole 3 of the second section and form a perfect joint, which can be relied upon, as it is impossible for the dowel-pin to

become disarranged. If the two sections do not exactly register, the dowel-pin will not be forced into the first section by contacting with the second section, further movement in that direction being prevented by the bur 6, and in this way when using my improved dowel-pin in forming conduits the joints can all be relied upon as perfect.

When it becomes necessary to form shorter sections by cutting up a whole section, it is obvious that the bell-shaped or flaring end 4 will be absent in the holes 3 of these shorter sections, which is a detriment when the old-style dowel is used, as no assistance can be rendered in guiding the dowel home, and a more perfect alinement is required, and even when perfect alinement is obtained it frequently happens that the hole 3 is imperfect in that slight burs of sand or clay are formed therein, which while easily knocked out of the way by the application of a little force are sufficient to prevent the old-style smooth dowel from sliding through said hole, thus making an imperfect joint. These objections are all clearly obviated by the use of my invention.

I am aware that minor changes can be made in the manner of constructing the bur or projection of my improved dowel-pin without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a conduit formed with continuous dowel-openings to cooperate with a dowel at any point where said conduit may be broken, of a dowel formed of a rod comprising its body portion, said rod having a fin or bur struck up from its side to limit the inward movement of said dowel in said dowel-opening, substantially as described.

2. The herein-described dowel for use in connection with refractory conduits, the same comprising a body portion from which is struck or bent up, one or more laterally-projecting fins or burs, substantially as described.

3. The herein-described dowel, as an article of manufacture, consisting of a short length of rod, on one side of which is formed a lateral projection integral with the body portion, substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 29th day of September, 1898.

SCUDDER CARROLL.

Witnesses:

WM. H. SCOTT,  
FRED. W. ABBOT.