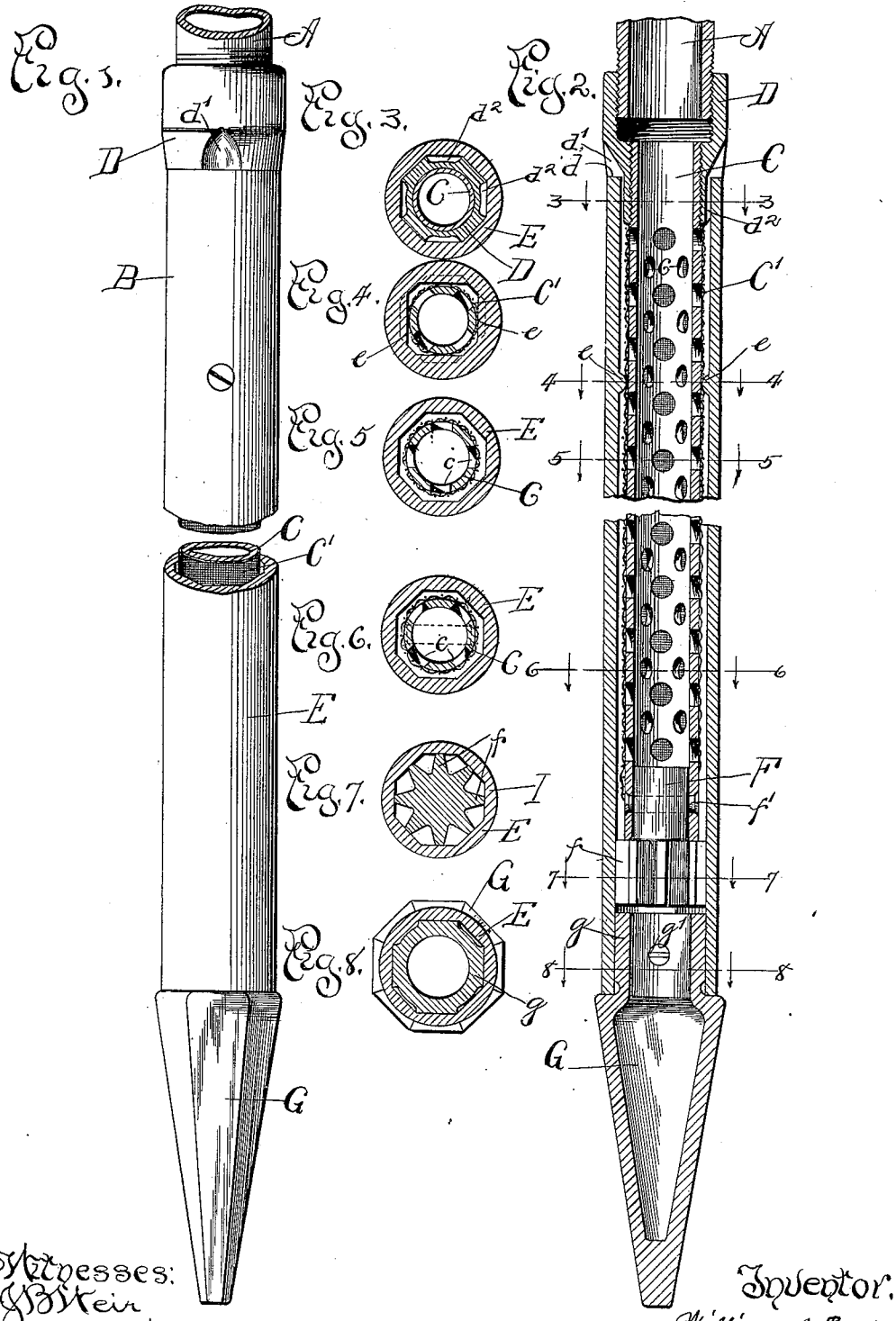
No. 634,312. Patented Oct. 3, 1899.

W. A. SWABY.

DRIVE WELL POINT.

(Application filed Aug. 22, 1898.)

(No Model.) 2 Sheets—Sheet 1.



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Fig. 10.

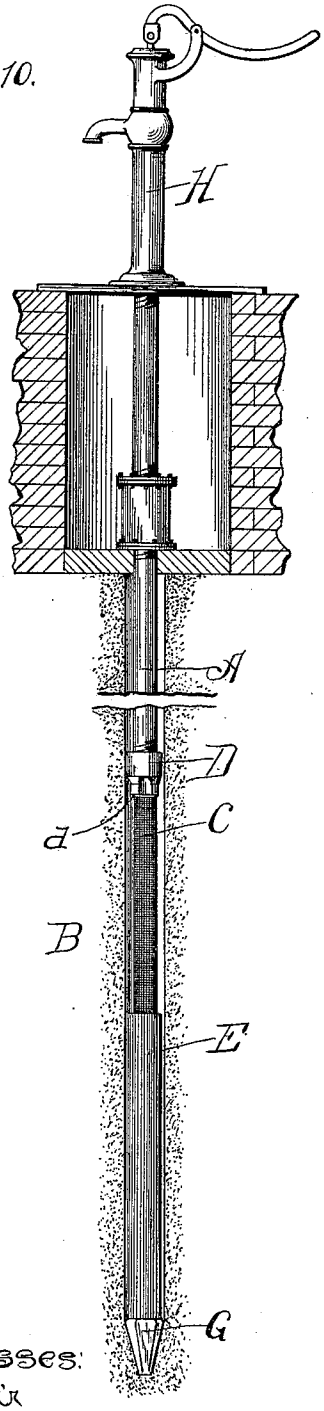
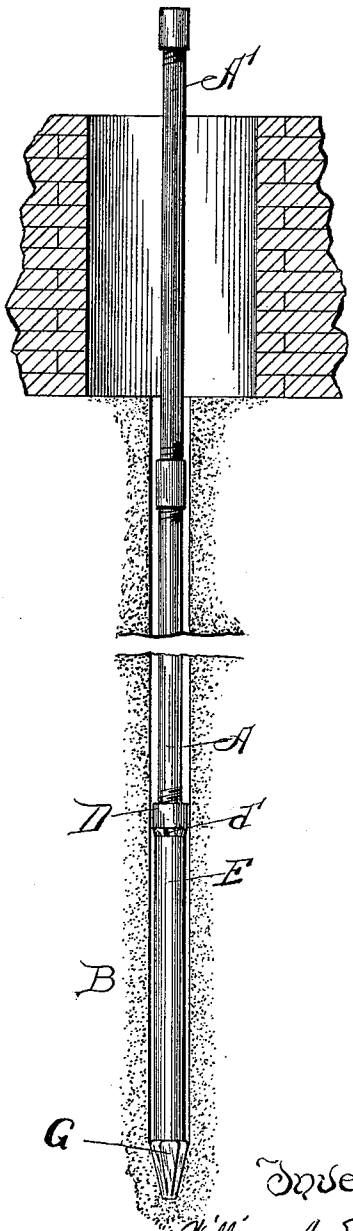


Fig. 9.



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UNITED STATES PATENT OFFICE.

WILLIAM A. SWABY, OF CHICAGO, ILLINOIS.

DRIVE-WELL POINT.

SPECIFICATION forming part of Letters Patent No. 634,312, dated October 3, 1899.

Application filed August 22, 1898. Serial No. 689,245. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. SWABY, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Drive-Well Points, of which the following is a specification.

My invention relates to drive-well points adapted for use in the formation of drive-wells.

As is well known, drive-wells are formed by driving a suitable number of sections of well-pipe successively into the ground and connecting the lower end of each section when it has been brought into position to be driven downwardly with the upper end of the section next preceding it. The drive-well point is attached to the lower end of the pipe-section first driven into the ground and when so attached serves to facilitate the sinking of such pipe and also to admit the water into the same when all of the pipes have been driven into position for service.

Prominent objects of my invention are to arrange for the easy, certain, and satisfactory establishment of what is termed a "well"—that is to say, the initial flow of water into and through the well-pipes—to positively and thoroughly exclude the sand and other materials from the device while the pipe is being driven into the ground and also after it is in position for service, to arrange for the free and unrestrained admission of the water during the operation of the pump attached to the upper end of the well-pipe, to afford ample protection for the relatively weak parts of the device during its descent, and to obtain the above results in a simple, economical, and efficient manner.

To the attainment of the foregoing and other useful ends my invention consists in matter hereinafter fully set forth.

In the accompanying drawings, Figure 1 is an elevation of a drive-well point embodying my invention and having its middle portion broken away for convenience of illustration. Fig. 2 is a longitudinal section of the same. Figs. 3 to 8, inclusive, are cross-sections taken on lines 3 3 to 8 8, respectively, in Fig. 2. Fig. 9 is a view, partly in elevation and partly in section, of a drive-well point embodying my invention driven into the ground for service in a well; and Fig. 10 is a similar view of the same arranged in operating condition and of a pump connected to its upper end for service.

The well-pipe sections A A', Fig. 9, are driven into the ground in any suitable or well-known way in sufficient length to reach the water stratum. The drive-well point B is attached to the lower end of the lowermost section A—that is to say, the section first driven into the ground.

The drive-well point illustrated in the drawings for carrying out my invention involves an inlet C, adapted to admit water into the well-pipe when it is driven into the region of water. While this inlet could be of any suitable or desired form of construction, I have shown it as consisting of a pipe or tube C, constructed with holes or apertures *c c*, so as to admit the water into its interior from all sides and all along its length. A layer C' of gauze or the like is desirably wrapped about and secured to the perforated pipe or tube C, so as to absolutely prevent the entrance of sand into the latter, and thus form with the perforated tube or pipe C a strainer. The perforated tube or pipe C has its upper end secured to the lower end of the well-pipe—as, for example, by means of a coupling or connection D, whose upper end is constructed to screw over the lower end of the section A and whose lower end is constructed to screw over the upper end of the tube or pipe C. By such arrangement the water entering the perforated tube or pipe C can flow without leakage into the well-pipe, while at the same time the perforated pipe and section A can be quickly and easily connected to and disconnected from one another.

The well-point also involves a slidable inlet-case E, in which the inlet C is received and incased during the descent of well-pipes and from which the same is withdrawn by a suitable elevation of the well-pipe to an extent to uncover and expose it when the pipes have been sunk into position for service. The incasement of the inlet within the case E during the descent of the well-pipe is best illustrated in Fig. 9, and the exposure of the inlet by a movement of the well-pipe relatively to the case E is best illustrated in Fig.

10. In this way the inlet C upon being withdrawn from the case E is drawn into a portion of the well-shaft formed by the case, and therefore having walls which are not in immediate contact with the inlet, but surround the same at a distance sufficient to afford a space between them and the inlet. As a result the inlet is immediately surrounded by water, and so when a vacuum is first created in the well-pipe water alone enters, and thereby allows the easy, quick, and effective establishment of the well. In this way also the inlet C is protected against injury and also against clogging by clay or other material during its descent, and also it affords a free and unrestricted passage for the water after it has been arranged in position and the well put into operation.

While the slidable case E could be of any suitable form or construction, I have shown it as consisting of a sleeve or barrel having a cylindrical exterior and an octagonal interior. The employment of an interiorly-polygonal barrel or sleeve E allows the parts within to be easily made to coöperate with it to prevent a relative twisting or rotary motion between it and the well-pipe. As an arrangement for providing an abutment to force this sleeve or barrel E downwardly in advance of the lowermost pipe the coupling or connection D is provided with a shoulder *d*, Figs. 2 and 10, which acts against the upper end of the sleeve or barrel E. As a means for preventing the withdrawal of the inlet C entirely from the sleeve E when the well-pipe is elevated to withdraw the strainer the sleeve or barrel E is provided near its upper end with suitable stops, such as the interiorly and transversely arranged beads *e e*, Figs. 2 and 4. These stops *e e* engage coöperating stops *f f*, Figs. 2 and 7, at the lower end of the perforated tube C when the latter has been withdrawn a suitable extent from the sleeve or barrel E. The stops *f f* conveniently consist of radially-extending teeth formed at the lower end of a plug F, which is fitted within and secured to the lower end of the perforated tube C, as by a screw *f'*, as best shown in Figs. 2 and 6. It will be observed that the teeth *f f* provide at the lower end of the strainer a polygonal portion which coöperates with the polygonal interior of the barrel or sleeve E, so as to prevent a relative rotary movement of the latter, and also that the spaces separating these teeth are in reality longitudinally-arranged passages formed in such polygonal portion and adapted to allow it to move freely through any matter—such as sand, water, and the like—which may be confined in the barrel.

When the lowermost pipe-section has been sunk to the stratum, this fact will be made evident by the entrance of the water into suitable test-holes *d' d'*, which are formed in the coupling D above its shoulder *d*. These test-holes *d' d'* communicate with the interior of the sleeve or barrel E when the latter incases the inlet C by way of suitable passages d^2 d^2, formed in the coupling between the holes *d' d'* and its lower edge, Figs. 2 and 3.

The lower end of the sleeve or barrel E carries a tapered or pointed penetrating-head G, which facilitates its penetration into the ground. It is secured to the sleeve or barrel, E by having a reduced octagonal portion *g* formed at its upper end and adapted to fit the octagonal interior of the sleeve or barrel inserted within the lower end of the latter and secured in position therein, as by a screw *g'*. A circumferential shoulder g^2, formed at the upper end of the tapered or pointed portion of the head, serves as an abutment, against which the lower end of the sleeve or barrel acts.

In Fig. 9 the well-pipe, with the drive-point attached, is shown entirely or partially driven into the ground. In Fig. 10 it is shown driven into position and the well-pipe elevated sufficiently to withdraw the strainer C from the sleeve or barrel E and so expose it. Also in this latter figure the pipe is shown connected to a suitable pump H, which is mounted and operated in any well-known or suitable way.

What I claim as my invention is—

1. In a drive-well point, the combination of a pointed sleeve or barrel made interiorly polygonal throughout its length; and a strainer adapted to slide within the barrel, and having its upper end provided with a polygonal portion adapted to fit within and engage the barrel when the strainer is within the same, and having its lower end provided with a polygonal portion which is adapted to fit and work within the barrel and engage the same irrespective of its position therein, and which is constructed with longitudinally-arranged passages adapted to allow it to move freely through any matter, such as sand, water and the like, which may be confined in the barrel.

2. In a drive-well point, the combination with an inlet and a relatively slidable imperforate and pointed case therefor, of an abutment for the case, provided with upwardly-inclined test holes and passages having their upper ends exposed and their lower ends communicating with the interior of the case when the latter is in position inclosing the inlet.

3. A drive-well point comprising a perforated inlet-pipe provided with a gauze or like covering; a tubular sleeve or barrel having a polygonal interior and adapted to incase and slide relatively to the perforated inlet-pipe; a coupling which serves as a medium of connection between the lowermost section of pipe and the inlet-pipe, and provides an abutment for the upper end of the incasing sleeve or barrel, and which is provided with test holes and passages communicating with the interior of such sleeve or barrel when it is in position to incase the inlet-pipe; a plug fitted within and secured to the lower end of the inlet-pipe, and constructed with radially-projecting stops adapted to coöperate with inwardly-

projecting stops formed near the upper end of the sleeve or barrel; and a tapered or pointed head secured to the lower end of the incasing sleeve or barrel.

4. In a drive-well point, the combination of a strainer having its lower end provided with outwardly-projecting teeth, *f, f;* a relatively slidable and pointed case having its interior made polygonal and provided with inwardly-projecting stops adapted to engage the teeth *f f;* and a coupling or the like having its lower end made polygonal so as to fit within the upper end of the case: whereby the teeth *f, f* and the lower end of the coupling serve to prevent a rotation or twist of the case relatively to the inlet, and also whereby the teeth *f f* serve as stops to limit the upward movement of the inlet relatively to the case.

Signed by me at Chicago, Illinois, this 12th day of August, 1898.

WILLIAM A. SWABY.

Witnesses:

A. MILLER BELFIELD,

HARRY W. BELFIELD.