J. H. BLOSE.

Drain-Pipe.

No. 221,439. Patented Nov. 11, 1879.

Fig. 1.

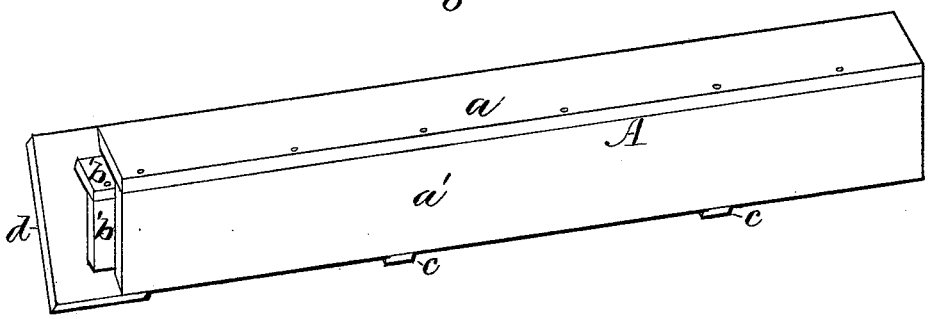


Fig. 2.

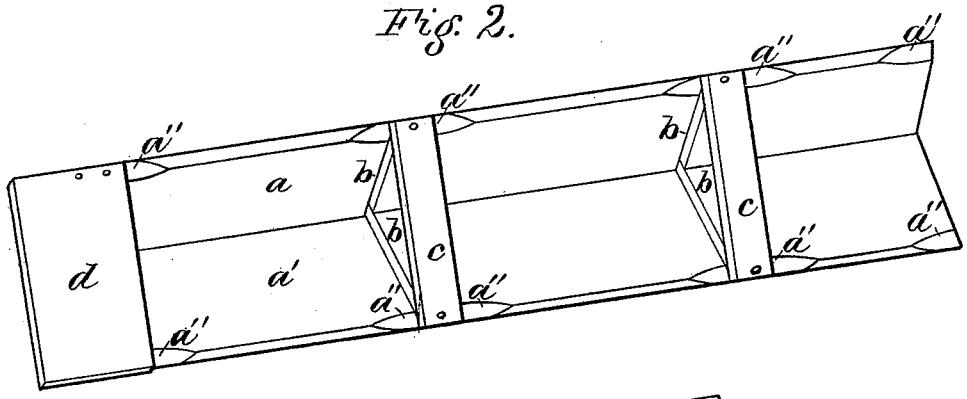


Fig. 3.

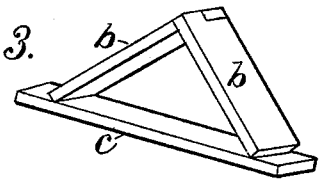
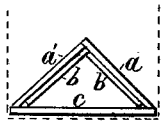


Fig. 4.



Attest.

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UNITED STATES PATENT OFFICE.

JOHN H. BLOSE, OF CLARKE COUNTY, OHIO.

IMPROVEMENT IN DRAIN-PIPES.

Specification forming part of Letters Patent No. **221,439**, dated November 11, 1879; application filed September 22, 1879.

To all whom it may concern:

Be it known that I, JOHN H. BLOSE, of the county of Clarke and State of Ohio, have invented certain new and useful Improvements in Drain-Pipes for Draining Land, of which the following is a full, exact, and complete specification.

My invention relates to that class of ditches or drains in which a wooden cap or cover is used, and in which the earth itself forms the bottom or lower side of the pipe.

Heretofore drains have been constructed with a covering of plank or other material applied in a variety of ways; but in those constructed of plank or boards the essentials of strength, durability, and permanence are wanting. Besides lacking in these requisites, the manner of connecting the sections has been such that one section could not be taken up for repairs without necessarily injuring its connected section. The size of drains constructed of plank has been limited, no attempt having been made to construct a drain having a board cap or cover (outwardly similar to mine) of anything but narrow plank, as an increase of width of the plank for a wide ditch or drain weakened it where ordinary thickness was used.

The object of my invention is the construction of permanent drains of cheap material, such as can be had on most ordinary farms, (boards of any kind of available wood being used,) and of improved inside construction, so as to make them of greater strength, and to prevent any lateral spreading apart of the planks. A system of braces and cross-ties are so applied as to bind them together and give firmness to resist the heaviest loads which may pass over them without injury.

Another object of my invention is to construct the connecting ends of the sections so that they will not only support each other, but any one section can readily be removed without displacing or injuring any part of the sections to which it is connected, if required.

Figure 1 is a view, in perspective, of the top of my drain-pipe. Fig. 2 is a view of the under side of the same. Fig. 3 is a view of braces and cross-tie as detached. Fig. 4 shows details of construction of ditch and manner of laying pipe.

A is the pipe, which consists of the two planks *a a'*, spiked together at one edge, so as to form a right-angled V in their cross-section. The plank *a* is equal in width to the width and thickness of *a'* added together, so as to make their widths from the angle to each edge equal when fastened together. At intervals of about four feet, more or less, according to the size and capacity of the drain, are placed the braces *b* on the inside. These are made of narrow pieces, of same thickness as the body-plank, and are cut in short pieces, equal in length, and notched in half-way at the top ends, so as to lock together, as seen in Fig. 3. These braces are nailed firmly to the inside. The inside angles of the edges of the planks are notched out to bring them in line (across) with the outside angles, (see *a''*, Fig. 2,) the purpose being to form a flat seat at each end for the cross-tie *c*, which is spiked across to each edge of the planks over the braces, the feet of the latter resting on the cross-tie. This may be better understood by reference to Fig. 3, which shows the relative position of the cross-tie and braces and the manner of locking the latter together at the top.

In laying my drain-pipe, a ditch is first cut with straight sides, as shown in the dotted lines, Fig. 4, the exact width of the base of the pipe, (across the cross-ties *c* and *d*,) so that when the pipe is laid there will be little or no space left at the edges between it and the side walls of the ditch. Care is taken to make the bottom of the ditch flat and even in surface, giving it the proper amount of inclination or fall, and the sections are then laid in and covered. The male end of each section has a broad cross-tie, *d*, spiked on it, which extends some distance beyond the end of the section to which it is attached, so as to form an apron (see Figs. 1 and 2) for the end of the next section connecting with it to lie upon. A double-width cross-tie, *b'*, is also placed in this (male) end, which extends out half its width beyond the ends of the planks *a* and *a'*, to form a support for the crown of the connecting section. (Seen at the right in Fig. 2.) This mode of con-

necting makes the joint very strong, and the extended braces b' b' prevent either section from lateral movement, even if the ditch is wider than the pipe.

In constructing drain-pipe of very large size, two or more planks can be used to form each side, their edges being joined tightly together to prevent the dirt from falling through between them, the system of braces and cross-ties being applied the same as shown.

I claim as my improvement—

1. In wooden drain-pipe constructed substantially as shown, a system of braces, b, locked together as specified, for supporting the crown of the same, as hereinbefore set forth.

2. In combination with planks a a', braces b and cross-ties c, for supporting and strengthening the pipe A and preventing any lateral spread of its sides, as herein specified.

3. In combination with the drain-pipe A, having a system of braces, b, notches a'', and cross-ties c, the extended double braces b' and apron d, for connecting the sections together, as hereinbefore set forth.

JOHN H. BLOSE.

Attest:
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