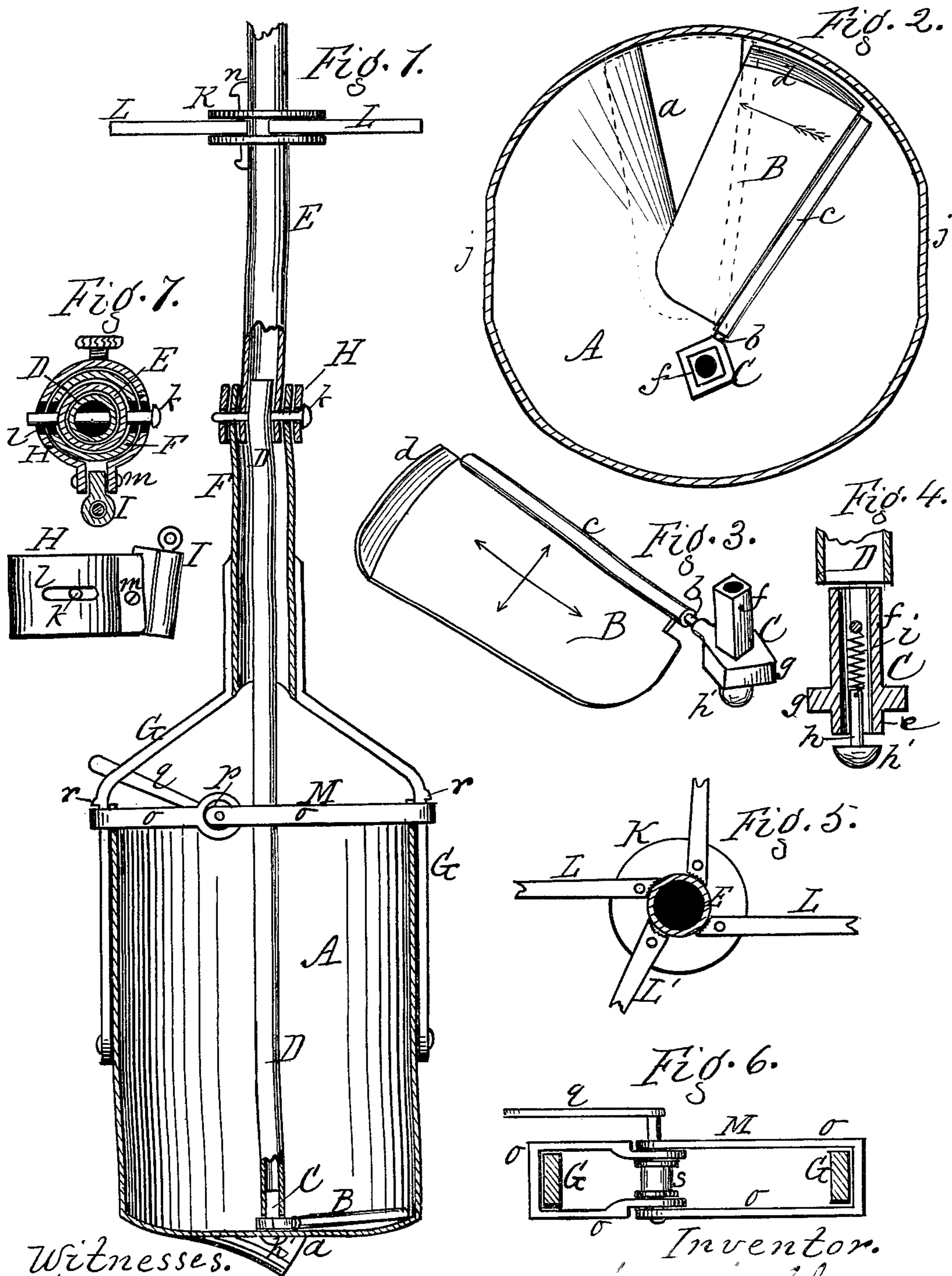


G. E. SHERRY.
EARTH-AUGER.

No. 176,364.

Patented April 18, 1876.



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GEORGE E. SHERRY, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. **176,364**, dated April 18, 1876; application filed February 4, 1876.

To all whom it may concern:

Be it known that I, GEORGE E. SHERRY, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Earth-Augers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section, showing the auger arranged for boring in quicksands. Fig. 2 is a cross-section on an enlarged scale. Figs. 3, 4, 5, 6, and 7 are detail views. Figs. 8 and 9 are a vertical and cross section, respectively, of the auger arranged for reaming or enlarging the hole at the bottom.

My improvement relates to those earth-augers where a hollow cylinder provided with a bit is employed.

The invention consists in the combination and arrangement of parts hereinafter more fully described.

A is the hollow cylindrical auger, provided with a bit, *a*, at the bottom, which cuts into the earth.

In boring through ordinary surface-soil this auger is employed in the usual way, being simply turned till the auger is filled, and then being raised and dumped; but in boring in quicksands it is necessary to use a valve which, when the auger is filled, is moved over the throat of the auger to retain the contents while the auger is raised. B represents the valve. It is made flat, and is, preferably, covered with leather or other soft material, by which it will pack. It is attached to a journal or arm, *b*, of a socket-piece, C, by means of a hinge-joint, *c*, as clearly shown in Figs. 2 and 3. This joint is so arranged that the valve can turn up upon its axis, or it can slide out or in longitudinally; and, in addition to this, the socket-piece C also turns upon its own center, thereby swinging the valve around within the cylinder. The valve has, therefore, a threefold movement, which is essential to make it effective.

In ordinary work, when the auger is going forward, the valve is moved back, leaving the throat open, as shown by full lines in Fig. 2. When the auger is filled for raising, the valve is turned over the throat, as shown by the dotted lines in the same figure. In moving to this position the valve slides outward endwise

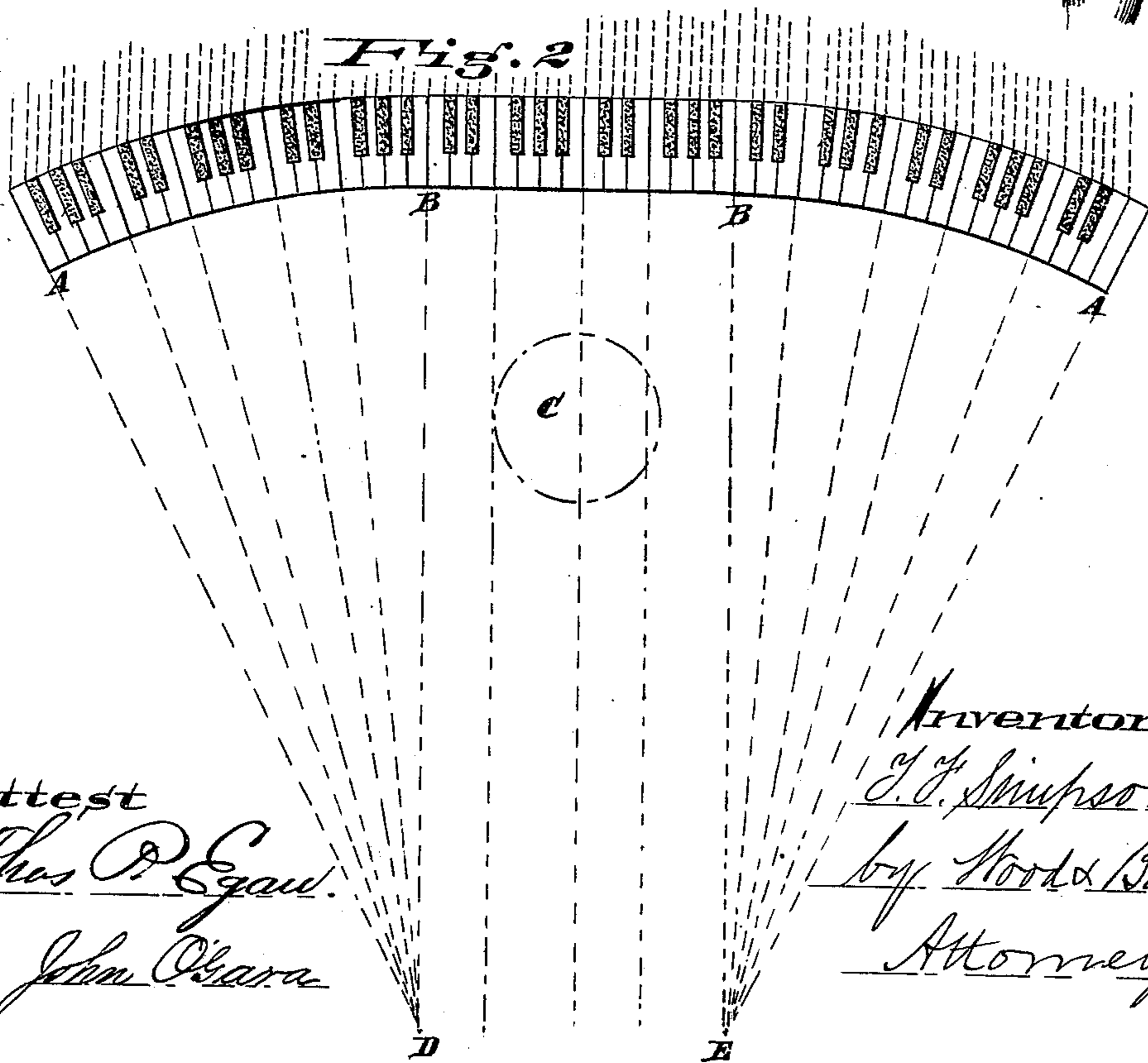
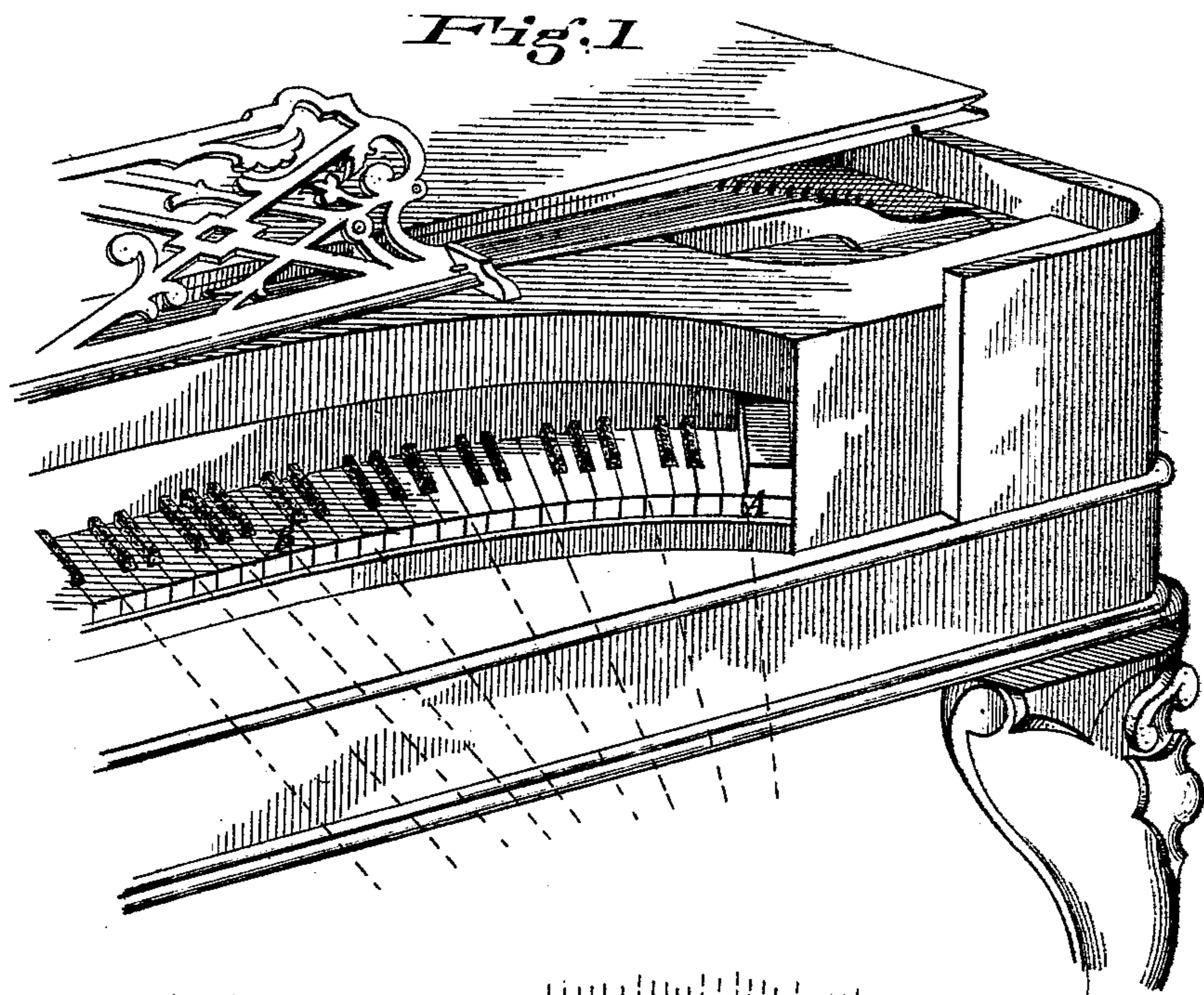
upon the journal *b*, to cover the extension of the throat formed by the bit. This sliding movement is produced automatically by an inclined wing or flange, *d*, turned up at its outer edge. The vertical movement of the valve on its own axis is to allow stones to pass through the throat.

The socket-piece C is provided with a round bearing, *e*, which extends through the bottom of the auger and turns therein. It also has a square stem, *f*, above the body *g*, on which fits the wrench for turning it. The interior of the socket-piece is made hollow, and in it rests a valve, *h*, with a head, *h'*, that rests below the auger.

The head of the valve is drawn up in contact with the end of the socket-piece by an interior spring, *i*, Fig. 4. The object of this arrangement is to allow air to pass through the socket-piece below the auger, to prevent suction. The ordinary squares *j j* are made on the sides of the auger, to allow the air to pass; but in some cases, and especially in quicksands, the closing of the sand around the auger will shut off the air, and this valve in the socket-piece will supply it under those circumstances. When there is no suction beneath, the valve-head *h'* will remain closed against the socket-piece, and prevent any passage of dirt into the socket-piece.

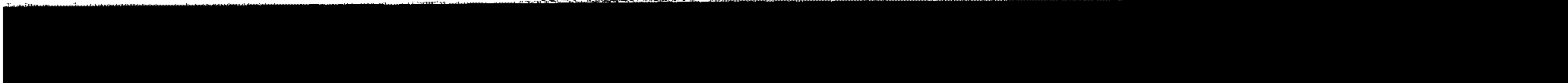
D is a pipe or tube, which fits loosely over and connects with the square stem *f* of the socket-piece and by which the socket-piece is turned on its axis. The lower end of the pipe is squared for this purpose. This pipe is hollow for the passage of air downward into and through the socket-piece, as just described. At its upper end it is connected with the main tube E, which extends up and passes through a bearing or socket connected with the derrick, by which means the auger is kept centered in its work, and may be removed from the well at any time by simply raising the tube, which slides freely upward through the said socket of the derrick. This socket is so arranged as to allow disengagement of the pipe for dumping the load. The two pipes D E are coupled by a pin, *k*, which passes through them, and also through the thimble F, attached to the bail G, and through a clamp-ring, H, outside the thimble. The thimble and clamp-ring have each two elongated slots, *l l*, in their opposite sides, Fig. 7, through which the pin *k* passes. By turning

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KEYBOARDS FOR MUSICAL INSTRUMENTS.
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