

No. 638,681.

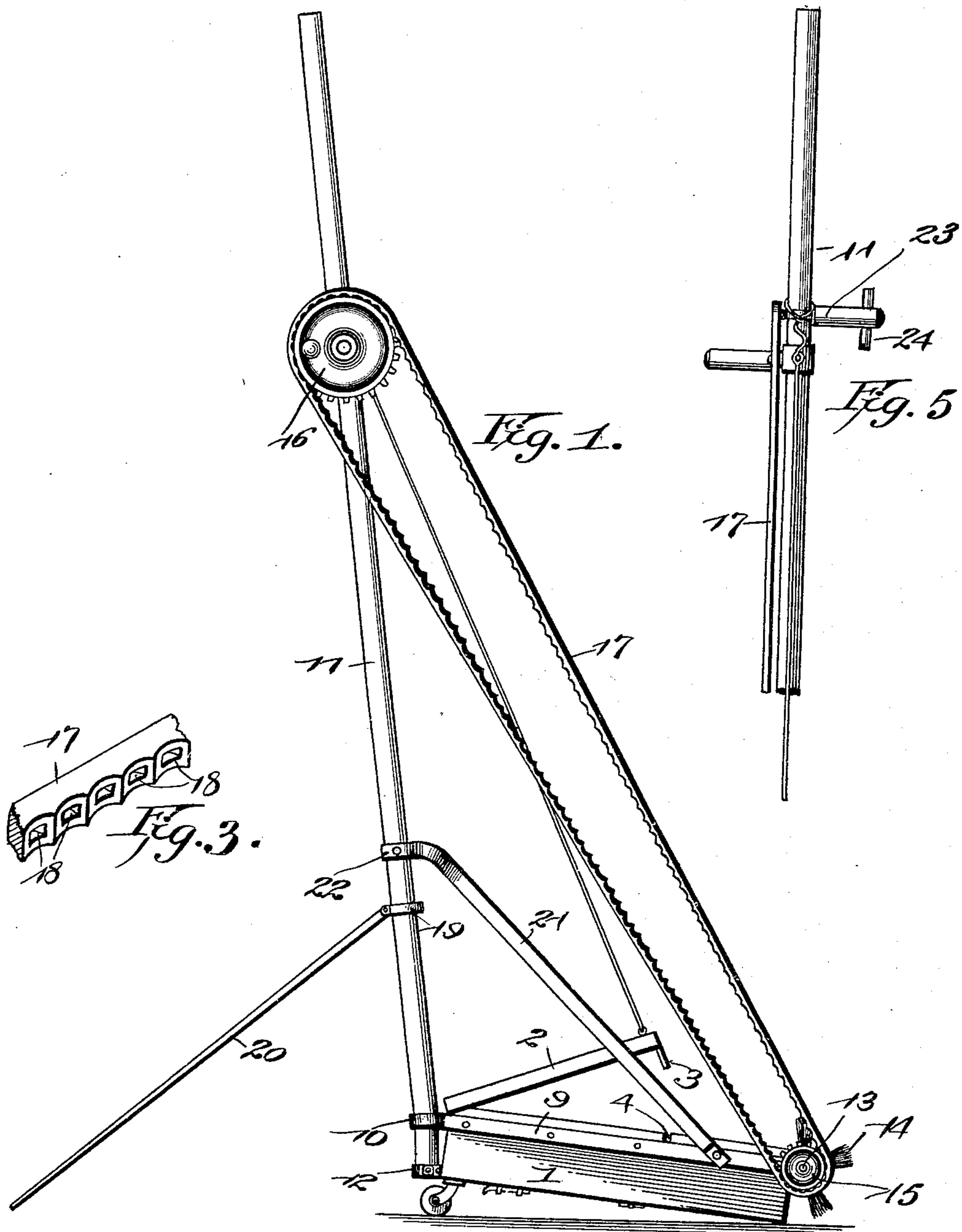
Patented Dec. 5, 1899.

F. D. KOCH.
MINING SHOVEL.

(Application filed Apr. 22, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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Inventor,

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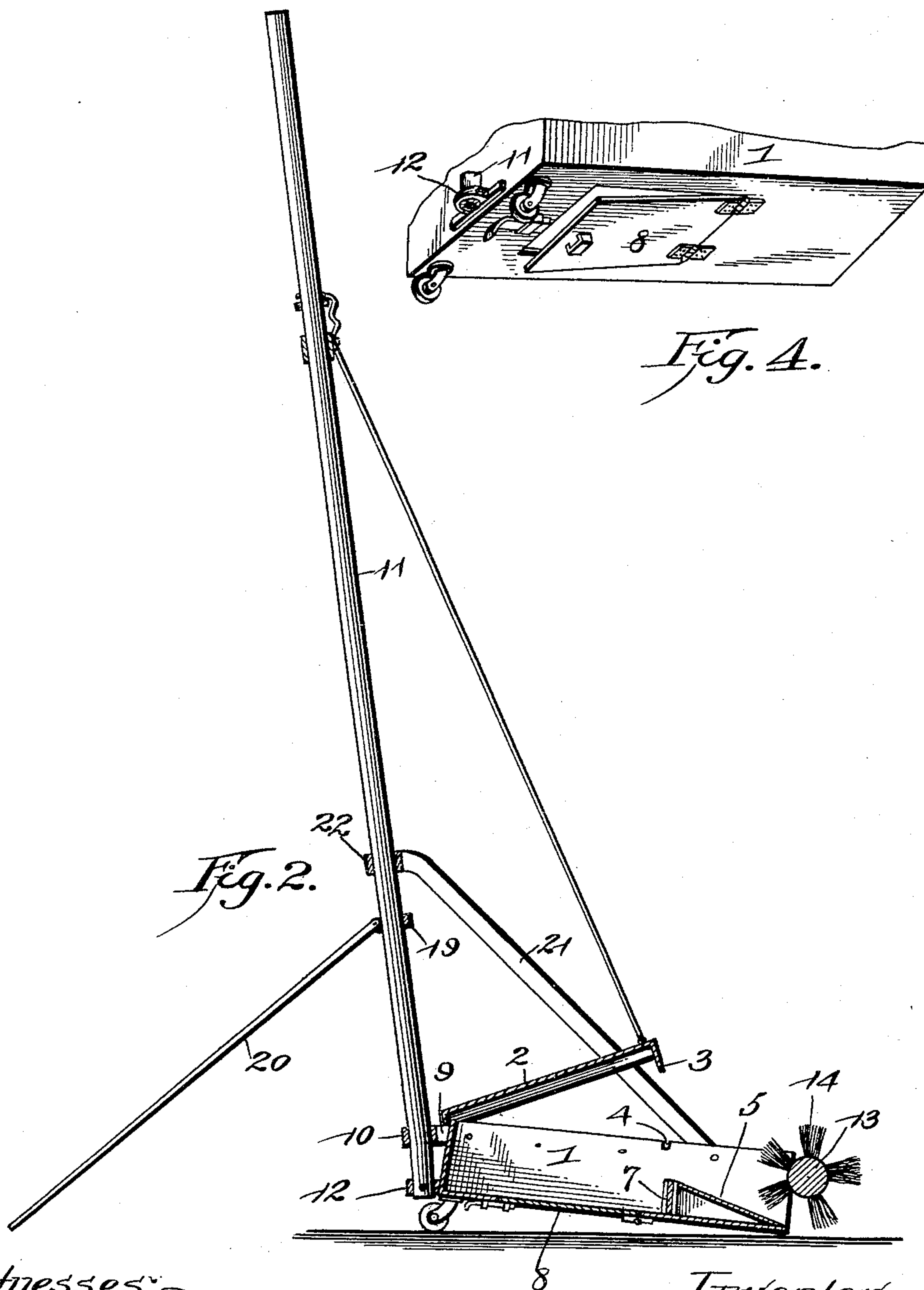
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UNITED STATES PATENT OFFICE.

FRANCIS DANIEL KOCH, OF CONSHOHOCKEN, PENNSYLVANIA.

MINING-SHOVEL.

SPECIFICATION forming part of Letters Patent No. 638,681, dated December 5, 1899.

Application filed April 22, 1899. Serial No. 714,128. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS DANIEL KOCH, a citizen of the United States, residing at Conshohocken, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Mining-Shovels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to machines for gathering precious metals; and it relates particularly to that class designed for collecting the deposits in the beds of streams.

The object of the invention is to provide a device which can be manipulated from above the surface of the water.

Furthermore, the object is to provide means whereby as the device is manipulated it frees the metal from the gravel and dirt and collects it in a riffle formed in the pan.

A further object of the invention is to provide novel means for directing and conveying the gold-bearing gravel into the riffle-box and in the provision of mechanism for actuating said means.

Finally, the object of the invention is the production of a manually-operated collector which comprises few parts and which will prove efficient and satisfactory, strong, and durable, while at the same time the cost of manufacture will be comparatively small.

With the above and other objects in view the invention consists in the novel details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth, and specifically mentioned in the annexed claims.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 is a view in side elevation of the invention. Fig. 2 is a longitudinal sectional view thereof. Fig. 3 is a detail of the operating-chain. Fig. 4 is a perspective showing

the under side of the receptacle. Fig. 5 is a detail front view of a portion of the handle.

In the drawings, 1 indicates a rectangular body having its rear end and two sides provided with walls of equal height forming a partial inclosure. A top 2 is hinged to the end wall, and the front end of the top is provided with a depending flange 3, which has its ends seated in the grooves 4 of the sides when the lid is closed, and it is my purpose to close the lid when the box or receptacle is filled for the purpose of preventing the current from disturbing the contents as the receptacle is being withdrawn. The cover is elevated by means of the connection *a*, and it will fall by gravity when released.

At the front of the receptacle is a scoop 5, having an inclined bottom, said inclination extending outwardly and just back of the rear wall of the scoop, and set at an angle (which angle may be varied according to the material operated upon) is an amalgamating-plate 7, against which the precious metals collect.

The receptacle is provided with a door 8 in its bottom, which may be opened for removing its contents. A metallic strip 9 embraces the receptacle on three sides, and in the rear it terminates in a loop 10 for the reception of the handle 11, which is provided for manipulating and holding the receptacle. A second loop 12 is attached to the rear wall for receiving the handle, as shown. The front ends of the strip protrude beyond the receptacle and terminate in bearings for the transverse shaft 13, said shaft carrying a broom 14. A sprocket-wheel 15 is mounted on the end of the shaft, and a second sprocket-wheel 16 is mounted on the stud attached to the handle. The wheel 16 is provided with a crank-handle, and the wheel is so positioned as to be within easy reach of the operator.

A flexible band 17 operates over the sprockets and has recesses 18 to receive the sprocket's teeth, as fully illustrated in the detail view Fig. 3.

A collar 19 is adjustably arranged on the handle *a*, and the brace 20, pivoted thereto,

permits of the device being held against displacement by the current, &c.

A bracing-yoke 21 has its ends secured to the sides at the front end, while at the rear a
5 loop 22 embraces the handle for giving rigidity to the structure.

The stud 23 is adjustable on the handle, and the cross-pin 24 affords a handhold for the operator.

10 The wheels on the bottom at the rear facilitate the transportation, and they may be of any well-known construction.

The operation will be obvious, it only being necessary to grasp the handle 11 and sub-
15 merge the device in the stream, whence by turning the wheel 16 the brush 14 will be rotated and force the soil with which it comes in contact over the scoop 5 into the receptacle, and the precious metal contained there-
20 in will be separated from the soil and collect upon and around the amalgamating-plate 7. When a sufficient quantity has been collected, the device is raised from the stream and its contents removed by opening the lid or door 8.

25 The construction and advantages will, it is thought, be understood from the foregoing description, it being noted that the arrangement of the elements for successfully carrying the invention into practice may be variously modified to meet particular require-
30 ments or circumstances, as will be obvious to those skilled in the art.

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

1. In combination, a receptacle having a hinged top and bottom, a metallic strip arranged on the sides of the receptacle, a loop
40 formed from the strip in the rear, bearings formed on the extremities of the strip, a shaft arranged transversely at the mouth of the receptacle, a brush on the shaft, means for

driving the shaft, a handle and a connection from the hinged top to the handle, substantially as described.

2. In combination with a receptacle to be submerged in a stream, a handle attached thereto, a collar adjustable on the handle, and a bracing-rod pivoted to the collar adapted to engage the bed of the stream and se-
50 cure the whole in a fixed position, substantially as described.

3. In a mining-shovel adapted to be operated by hand a receptacle of the character described, a scoop having an inclined bottom
55 and an inclined rear wall, an amalgamating-plate set at an incline at the rear of the scoop, a rotating brush in front of the scoop, and means for driving the brush, substantially as described.

4. In combination with a receptacle adapted to be submerged, a hinged top having a depending flange on its front end, adapted to seat in recesses in the sides, a flexible connection for raising the cover, a scoop at the
65 front of the receptacle having a rear inclined wall, an amalgamating-plate in the rear of the scoop, a strip surrounding the receptacle on three sides, loops connected with the receptacle a handle held by the loops, a brace-
70 rod pivoted to the collar on the handle, a sprocket-wheel secured on the handle, a shaft arranged transversely of the scoop, a sprocket-wheel thereon, a flexible band having recesses to receive the sprocket-teeth, and wheels at-
75 tached to the bottom of the receptacle, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRANCIS DANIEL KOCH.

Witnesses:

THOMAS ROBINSON,
JAMES W. WOOD.