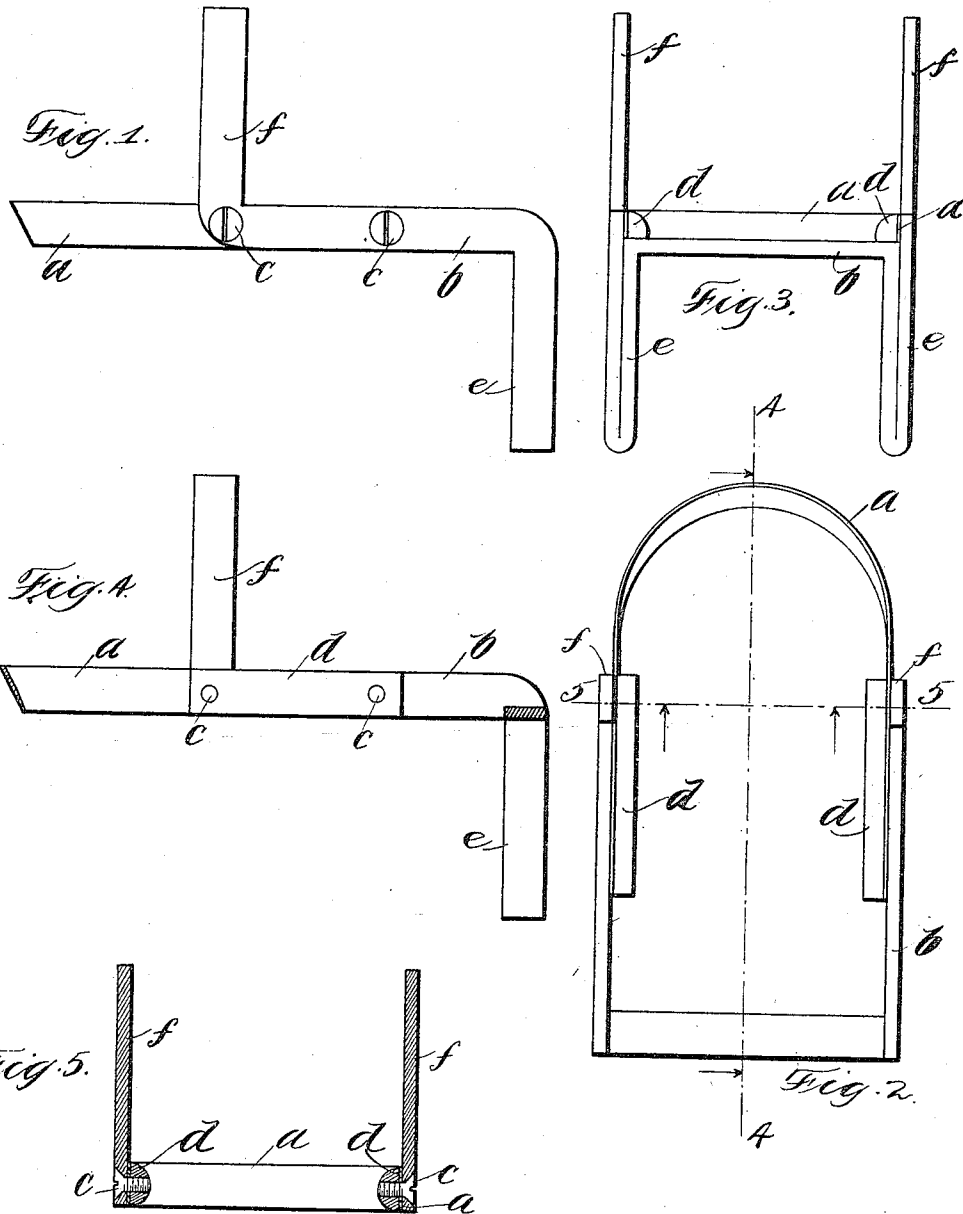


R. A. BONNELL.
EXCAVATING TOOL.
APPLICATION FILED APR. 11, 1908.

994,113.

Patented June 6, 1911.



WITNESSES:
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RALPH A. BONNELL, OF CHICAGO, ILLINOIS.

EXCAVATING-TOOL.

994,113.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed April 11, 1908. Serial No. 426,587.

To all whom it may concern:

Be it known that I, RALPH A. BONNELL, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Excavating-Tools, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to excavating tools, and has for its object the provision of an improved hand operated tool for the purpose of excavating clay and other soils.

My invention in its preferred embodiment is an improvement upon the invention set forth in my application for U. S. Letters Patent Serial No. 403,606, filed November 25, 1907, and includes in such embodiment a cutting element formed of strip metal so bent or shaped that the intermediate portion thereof is adapted to engage and cut the soil, while the ends of the strip metal are braced so as to maintain uniform the distance between the same.

The tool of my invention is desirably operated by two workmen, to which end the tool is provided with facilities whereby it may be gripped upon one side by one workman and upon the other side by another workman. The gripping facilities are desirably disposed at the rear and at the front of the tool, the gripping facilities at the forward portion of the tool being located a sufficient distance to the rear of the front end of the tool to allow sufficient clearance for the hands of the workmen with respect to the soil. The gripping facilities are desirably in the form of handle portions which are added to the structure, and at least two of these handles are desirably projected transversely to the tool while the remaining two handles are desirably disposed longitudinally of the tool. By this construction each workman may secure a very firm and effective hold upon the tool.

In the preferred embodiment of the invention of my aforesaid application, the handles which projected transversely to the tool projected also beyond the same in the plane of the tool, whereby it was necessary to have a space within which the workmen could operate that would be greater than is always available in excavation. In my present invention the handles which extend transversely to the tool also lie in

planes that are transverse to the plane of the tool, and by the expression "plane of the tool" I mean that plane which includes the sides of the tool and the blade of the tool.

I will explain my invention more fully by reference to the accompanying drawing, showing the preferred embodiment thereof, in which—

Figure 1 is a side elevation of the tool as preferably constructed. Fig. 2 is a plan view thereof. Fig. 3 is an end view taken from the rear of the tool. Fig. 4 is a sectional view on line 4 4 of Fig. 2. Fig. 5 is a sectional view on line 5 5 of Fig. 2.

Like parts are indicated by similar characters of reference throughout the different figures.

The cutting portion *a* of the excavating tool desirably resides in a strip of metal, preferably spring steel, bent or formed into suitable shape. I preferably form the strip of metal into a U-shape, with the sides of the U substantially parallel, as indicated in Fig. 1, though I do not wish to be limited in all embodiments of my invention to this shaping of said metal strip. The base portions of the cutting element are maintained a fixed distance apart by means of a bracing device which is of a comparatively heavy strip of metal *b*, desirably steel of suitable weight, which bracing element is also desirably bent into a U-shape, the bases of the U-shaped elements *a* and *b* being united by suitable fastening devices *c* (shown in the form of machine screws) which desirably separably join the elements *a* and *b* so that the element *a* may readily be replaced on occasion. In order most effectively to brace the cutting element and at the same time sufficiently clear the clay, the sides of the cutting and bracing elements are alined to occupy the same plane. The U-shaped elements *a* and *b* are thus oppositely disposed.

Handles are provided at the forward portion of the tool, each preferably including a semi-cylindrical bar *d* secured into position by means of the screws *e* having threaded engagement therewith. The bars *d* also act as nuts for the screws *e*, whereby the blade *a* is fastened to the bracing element *b*. Handles *e* are provided at the rear of the tool, these latter handles projecting transversely to the plane of the tool and desirably perpendicularly to said plane. These handles are desirably formed integrally with the bracing element *b* by folding and bending

the material of said bracing element to form the handles as indicated most clearly in Figs. 1, 3 and 4 but I do not wish to be limited to this method of forming the handles *e*. In the preferred embodiment of my invention, the excavating tool includes two sets of handles, one set upon each side of the tool, each set of handles including one which lies longitudinally of the tool near the forward end thereof and the other which is transversely disposed with respect to the plane of the tool and at the rear end of the tool. There may also be provided another handle *f* on each side of the tool and near the forward end of the tool, these handles *f* also projecting in directions transverse to the plane of the tool, the handles *e* and *f*, however, being on opposite sides of the plane of the tool, though the handles *e* and *f* upon each side of the tool are preferably in the same plane.

By means of my present invention the tools may be provided with handles (handles *e* and *f*) which are angularly disposed with respect to the cutting element, yet which do not require more width of space for the operation of the tool than is substantially required by the cutting element of the tool.

By reason of the bracing element *b*, a comparatively light strip of metal may be employed for the cutting element *a*, and by separably uniting the cutting element with the bracing element, said cutting element may be readily renewed on occasion.

I use the expression "cutting element" in the sense of an element with suitable force behind it to enable it to cut the soil, not limiting myself to a cutting element having a sharpened edge.

It is obvious that changes may readily be made in the embodiment of my invention

shown without departing from the spirit thereof, and I do not, therefore, desire to be limited to the precise construction shown, but,

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:—

1. A tool of the class described including a U-shaped cutting element of strip metal, a U-shaped bracing element uniting the ends of the strip metal, a handle on each side of and at the rear end of the tool extending transversely to the plane of the tool, a handle on each side of and at the forward portion of the tool extending longitudinally of the tool, and additional handles at the forward portion of the tool extending transversely to the plane of the tool, the handles on each side of and at the rear end of the tool projecting in directions opposite from the directions of the last aforesaid handles.

2. A tool of the class described including a cutting element of strip metal, a bracing element uniting the ends of the strip metal, a handle on each side of and at the rear end of the tool extending transversely to the plane of the tool, a handle on each side of and at the forward portion of the tool extending longitudinally of the tool, and additional handles at the forward portion of the tool extending transversely to the plane of the tool, the handles on each side of and at the rear end of the tool projecting in directions opposite from the directions of the last aforesaid handles.

In witness whereof, I hereunto subscribe my name this 6th day of April A. D., 1908.

RALPH A. BONNELL.

Witnesses:

L. G. STROP,
L. JONES.