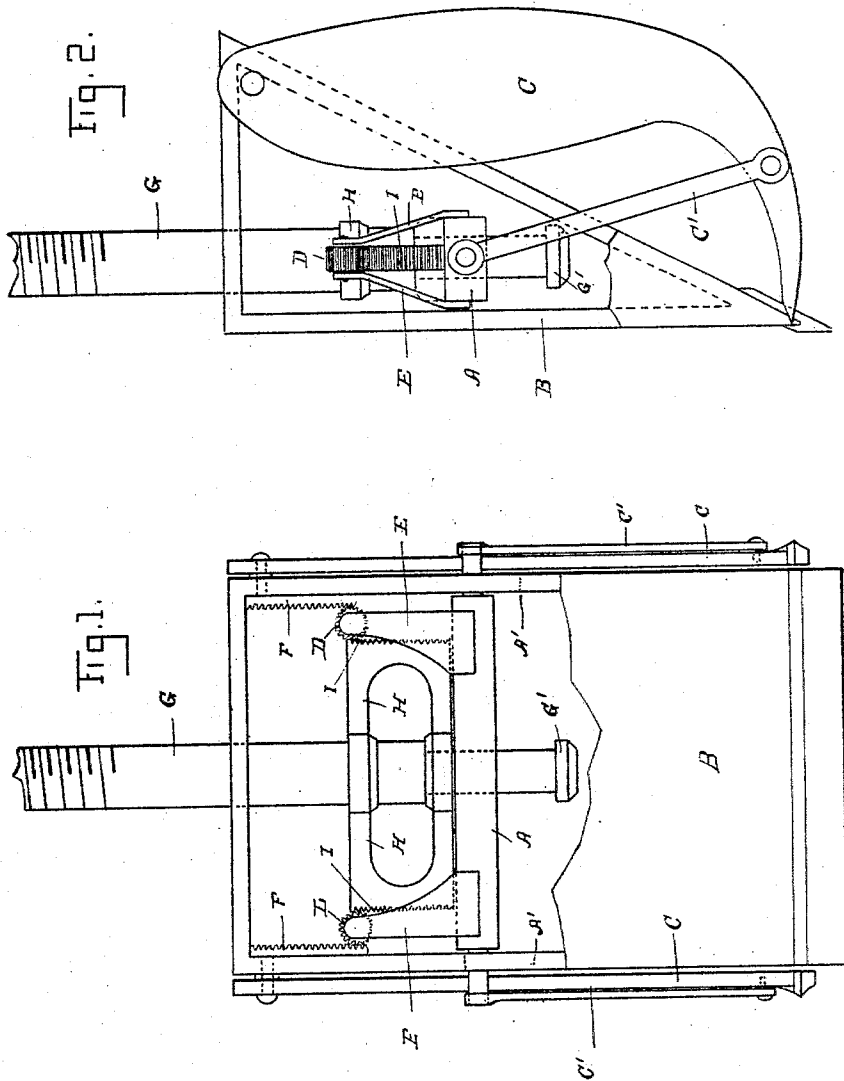


(No Model.)

W. H. FULCHER.
EXCAVATOR.

No. 584,037.

Patented June 8, 1897.



WITNESSES:

Baldwin Talbot
Chas. J. Ambrose

INVENTOR

BY *William H. Fulcher*
Born & Howard
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM H. FULCHER, OF STOCKTON, CALIFORNIA, ASSIGNOR TO THE
STOCKTON TRENCH EXCAVATING COMPANY, OF SAME PLACE.

EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 584,037, dated June 8, 1897.

Application filed July 20, 1896. Serial No. 599,946. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FULCHER, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Excavators; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This present invention has particular reference to an improvement in this class of machines, for which a patent, No. 558,452, was granted me the 14th day of April, 1896; and it consists in an improvement in the digging apparatus thereof.

The accompanying drawings show in Figure 1 a vertical section of the digger, to which this invention has particular reference. Fig. 2 is a side elevation of the same.

The objects which this invention has in view are the steadying the wedge-shaped and side-cut knives and the strengthening the lifting hold.

The principle of the above-named objects is that of steadying the wedge-shaped knife while throwing forward the side-cut knives. For this purpose the bar A, which extends beyond the sides of the hollow triangular casing B, to engage the lower end of the side-cut knives C, is provided with the pinions D D. These pinions are journaled in bearings provided in the standards E E. The bearings are so located that the pinions engage rack-bars F F, formed on the inner sides of the hollow casing B. These standards are rigidly mounted on the bar A.

The hollow triangular casing B forms the wedge-shaped knife above referred to. The raising and lowering of this knife is accomplished by the shaft G, as described in the patent above referred to. Just above the upper shoulder, which strikes above and depresses the knife, there is provided a frame H, having side racks I I to engage the pinions D D. This frame H is provided with openings through which the end of the shaft G passes and in which it is set against pulling out.

The ends of the bar A engage the side-cut

knives C C by means of the connecting-rods C' C' in the position practically as shown. (See Fig. 2 of drawings.) These knives, as shown, same figure, are pivoted to the triangular frame B.

A digger built in accord with this invention would operate as follows: As shown in full lines in Fig. 2, the parts are in the position assumed in the descent of the digger. This position is maintained until the bottom of the trench in course of construction is reached. As the shaft G is now raised to lift the digger the shaft passes freely through the perforations provided in the upper part of the frame and in the bar A until the lower shoulder G' strikes under the bar A and begins to lift the whole digger thereby. During the rise of the shaft G, prior to the shoulder G' striking the bar A, the racks I I rotate the pinions D D, which, being engaged with the racks F F on the sides of the frame B, in rotating travel up the same, and in this manner draw on the bar A to throw the side-cut knives forward into the earth forward of the line of the down-cut made by the wedge-shaped knife B. The racks and pinions are so constructed that when the shoulder G' strikes the bar A the bar A has been raised by the pinions to the upper end of the slots A' in the sides of the frame B. By means of this construction the lifting strain is brought on the digger gradually and when all the parts are in place ready to receive it. Also by lifting the side knives from the two sides of the bar A the action of the machine is rendered steady.

Having thus described this invention, what I claim is—

In an excavator such as described, the wedge-shaped knife, B, the side-cut knives, C, the connecting-rods, C', C' the lifting-bar, A, the shaft, G, the rack-bars, F, and I, and the interposed pinions, D', mounted on the lifting-bar, A, all combined, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 19th day of May, 1896.

WILLIAM H. FULCHER.

Witnesses:

R. C. MINOR,

C. W. NORTON.