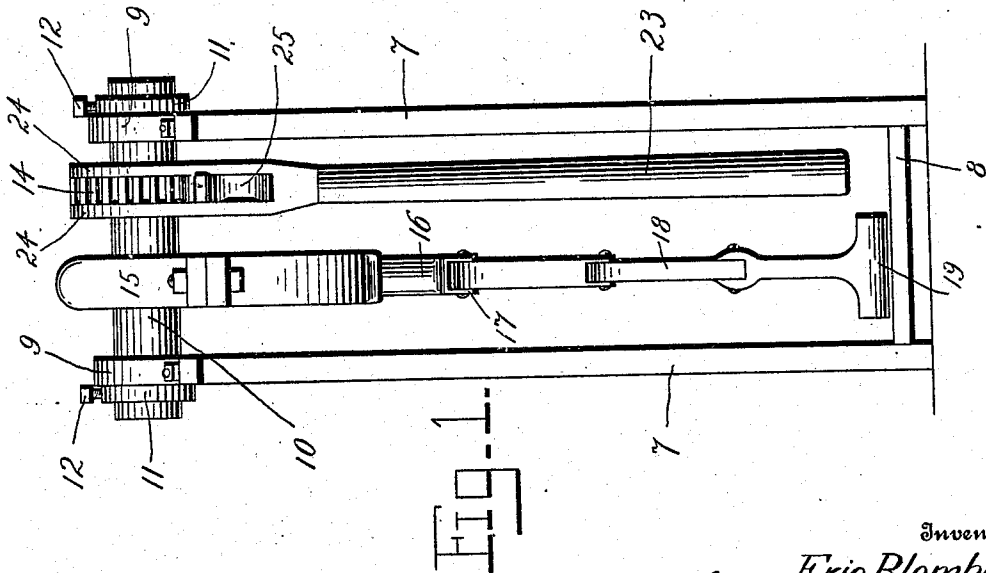
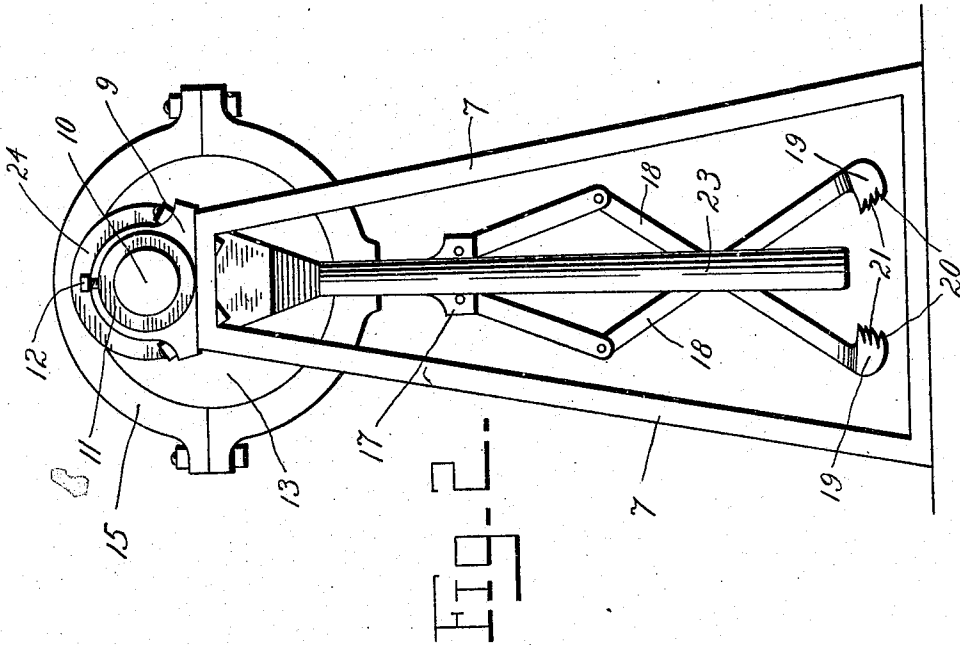


E. BLOMBERG.
BOLT PULLER.
APPLICATION FILED JUNE 16, 1908.

936,755.

Patented Oct. 12, 1909.
2 SHEETS—SHEET 1.



Witnesses
T. Shoyama.
N. Remsburg,

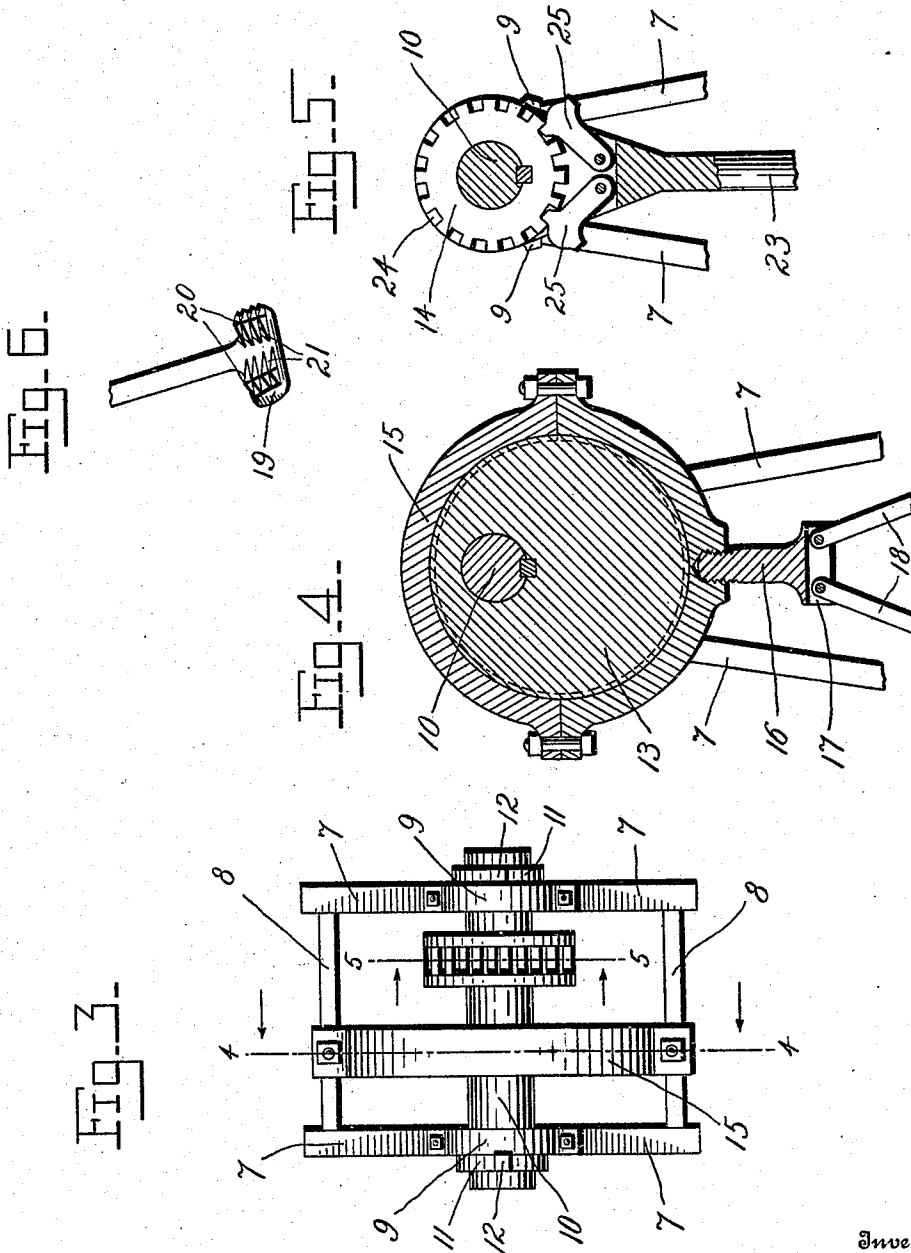
Inventor
Eric Blomberg.
Lawrence L. Lander
Attorneys

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2 SHEETS-SHEET 2.



Witnesses
T. Goryama.
W. Remsburg.

Inventor
Eric Blomberg.
By *[Signature]*
Attorneys

UNITED STATES PATENT OFFICE.

ERIC BLOMBERG, OF MILACA, MINNESOTA.

BOLT-PULLER.

936,755.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed June 15, 1908. Serial No. 438,581.

To all whom it may concern:

Be it known that I, ERIC BLOMBERG, a citizen of the United States, residing at Milaca, in the county of Millelacs, State of Minnesota, have invented certain new and useful Improvements in Bolt-Pullers; 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.

The present invention relates to improvements in bolt pullers, and it has for its principal object the provision of an efficient and powerful apparatus of that class which shall be exceedingly simple in its construction, and may be readily operated and manufactured at an extremely low cost.

To this end, the invention briefly described, comprises a supporting frame or tower in the upper end of which is journaled a horizontal shaft carrying a ratchet wheel and an eccentric, the strap surrounding the eccentric having attached thereto a pair of lazy tongs whose claw-shaped free ends are adapted to grasp the bolt and withdraw the same from the material into which it has been driven, when the shaft which carries the eccentric is rotated in the proper direction, such rotation being effected by means of a specially constructed lever provided with a pair of oppositely-disposed dogs arranged for engagement with the ratchet wheel.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts, or features, as the case may be, are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is a front elevation of the complete invention. Fig. 2 is a side elevation thereof. Fig. 3 is a plan view. Figs. 4 and 5 are vertical sections taken transversely of Fig. 3, upon the lines 4—4 and 5—5 respectively. Fig. 6 is a perspective view of the claw end of one member of the lazy-tongs.

Referring more particularly to the drawings, the frame upon which the operating parts of the apparatus are mounted is shown as comprising a pair of parallel members 7 disposed vertically and in spaced relation to each other, their lower ends being connected together by tie rods 8. Said members have bolted to their upper ends bracket bearings 9 in which are journaled the ends of a hori-

zontal shaft 10, displacement of which relative to the brackets is averted by means of collars 11 located adjacent the outer faces of said brackets and held in place upon the shaft ends by set screws or similar devices 12. The above mentioned shaft has keyed thereto an eccentric 13 and a ratchet wheel 14, the former of which has clamped thereto a two part strap 15 whose lower member carries a depending arm 16 having a bifurcated lower end 17, the upper end of said arm being engaged in a threaded socket formed in said lower strap member.

The end of the arm 16 in which the bifurcation is formed, is enlarged transversely, as shown in Fig. 4, the bifurcation extending completely through said enlarged portion. In this bifurcation are pivoted the upper ends of the members of a pair of lazy-tongs 18 whose claw-shaped lower ends 19 are turned inwardly toward each other. Each claw, as shown in Fig. 6, has an angular gripping face 20 provided with rows of transverse serrations 21, the serrations of the adjacent faces forming continuations of each other.

The actuation of the lazy-tongs is effected by means of a lever 23 whose enlarged head is provided with a bifurcation in which the ratchet wheel 14 is adapted to be received, the ears 24 resulting from the formation of said bifurcation being provided with alining axial openings through which the shaft 10 extends, the diameter of these openings being slightly greater than that of the shaft, so as to permit a free swinging or revoluble movement of the lever in either direction around the shaft. The lever is provided with a pair of oppositely-disposed gravity pawls or dogs 25 whose stems extend into the bifurcation formed in the lever head, to which latter they are pivotally connected. The toothed heads of said dogs are arranged for engagement with the teeth of the ratchet wheel 14.

The operation of the apparatus will be apparent from the foregoing, the claw ends of the lazy-tongs biting into the head or shank of the bolt during the initial rotation of the shaft 10, the continued rotation of which will raise the tongs and cause the same to pull the bolt gradually outward from the material into which it has been driven. Should a semi-rotation of the eccentric be insufficient to withdraw the bolt, a movement can be continued which will cause the ec-

centric and the jaws to move downwardly and the latter to grip the bolt at a lower point when the eccentric again lifts the lazy tongs.

5 What is claimed is:

1. A bolt puller comprising a shaft; an eccentric and a ratchet secured thereto; a strap carried by the eccentric; a pair of lazy-tongs pivotally connected at their upper ends with the strap and having their lower ends formed with in-turned claws; a lever having a bifurcated head straddling the ratchet and provided with an opening through which said shaft loosely passes; and
10 a pair of oppositely-disposed dogs pivoted to said lever and arranged for engagement with the ratchet, for rotating the latter and said shaft, to operate said tongs.

2. A bolt puller comprising a pair of vertically-disposed lazy tongs having their
20

lower ends formed with in-turned claws, each claw having a double row of transverse serrations supported from each other at the center of the claw, and means for operating said tongs.

3. A bolt puller comprising a pair of vertically-disposed lazy tongs having their lower ends formed with in-turned claws each claw having a double row of transverse serrations, the serrations of one row being in line with those of the other and having their coacting edges inclined inwardly to the center of the claw, and means for operating said tongs.

In testimony whereof, I affix my signature, in presence of two witnesses.

ERIC BLOMBERG.

Witnesses:

C. E. ERICKSON,
THOS. W. ALLISON.