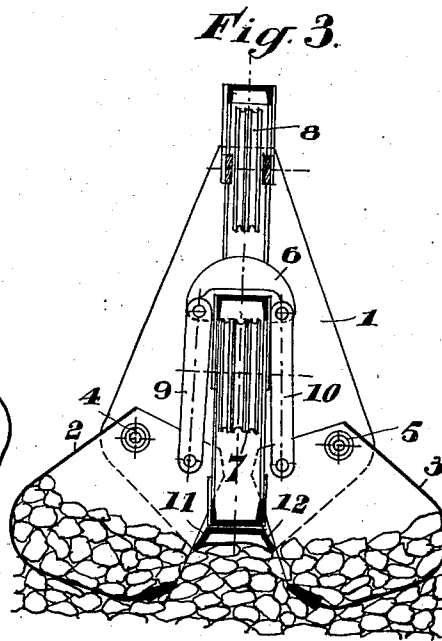
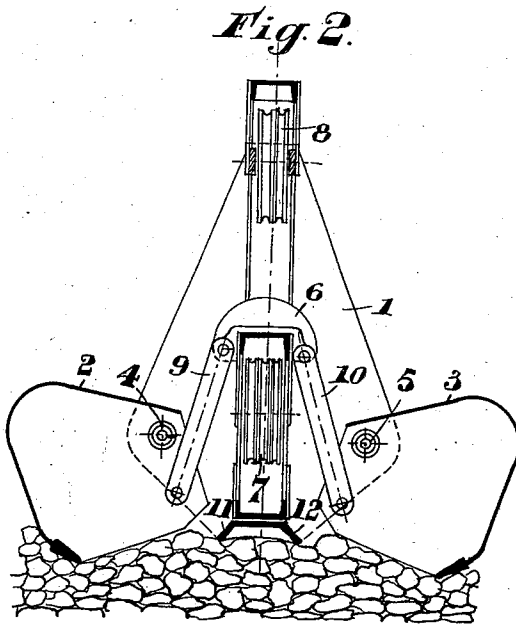
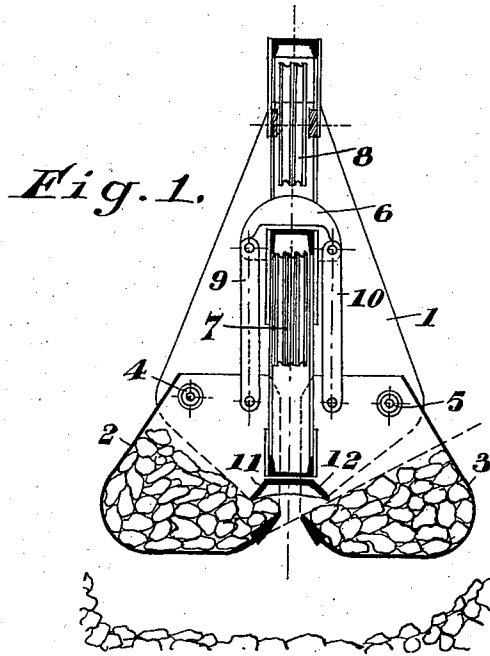


W. ELLINGEN.
 AUTOMATIC GRAB FOR MATERIAL IN LARGE PIECES.
 APPLICATION FILED AUG. 17, 1911.

1,026,573.

Patented May 14, 1912.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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AUTOMATIC GRAB FOR MATERIAL IN LARGE PIECES.

1,026,573.

Specification of Letters Patent.

Patented May 14, 1912.

Application filed August 17, 1911. Serial No. 644,542.

To all whom it may concern:

Be it known that I, WILHELM ELLINGEN, a subject of the German Emperor, residing at Cologne-Lindenthal, Germany, have invented new and useful Improvements in Automatic Grabs for Material in Large Pieces; and I do hereby declare the following to be a full, clear, and exact description of the same.

The well known automatic grabs work all in such manner that two cups, after having been placed with their concave side on the material, are pulled together by means of a lever, gear or the like, until the edges of the cups meet. The pieces of material getting between the said edges, are cut by the same at the last moment of closing. This method of working explains also why the well known grabs cannot be used for every material, for if the material is so hard that, on the maximum closing force having been used, it cannot be crushed by the grab cups, as is for instance the case with iron ores, the well known automatic grabs fail. It has been attempted to construct gripping devices for such hard materials in coarse pieces by mounting on one gripper frame two tubs or buckets independent of each other and moving them by a closing device usual in the automatic grabs. It is true that such double buckets or tubs avoid the closing together of working edges but as the buckets or tubs must be consequently raised to such an extent as to prevent the material taken up by the same, from falling out again, the closing mechanism has to make a very large stroke, and in constructions of that kind, owing to the great length of levers, the structure for the closing device is very high, not strong and unfavorable for the working.

The grab according to this invention has the same advantages as the double buckets just described, without their drawbacks. In this grab namely it is not necessary to have a closing together of cutting edges in order to insure a reliable closing of the grab. Nevertheless, the cups need not be raised to anything like the same extent as in double buckets, on the contrary, they need not make any greater movement than that of the cups of the well known automatic grabs. The prevention of falling out of the material gripped is effected by deflecting edges mounted on a cross-beam in the center between the cups.

A construction of the gripper is shown in

the accompanying drawing in elevation, in three different positions.

Figure 1 shows the gripper in closed position, Fig. 2 in an entirely open position, and Fig. 3 the position of the gripper just before the complete closing, which is specially characteristic, as will be hereinafter explained.

The cups 2 and 3 are rotatably mounted at 4 and 5 in the grab frame 1. In the frame 1 slides the block 6 carrying the bottom part of the pulley block 7, 8. The block 6 is connected by links 9, 10 to the grab cups. On the lower end of the frame 1 are arranged at the bottom, throughout the whole width of the gripper cups, deflecting sheets 11 and 12 arranged at such a level that when the gripper cups are closed, there is left between the bottom edges of the gripper cups and the deflecting sheets, an intermediate space corresponding about to the diameter of the largest piece of material occurring.

The working in gripping is as follows: When the grab is placed on the material, as shown in Fig. 2, with completely open cups, the deflecting sheets 11 and 12 are higher than the working edges of the cups to such an extent that they do not interfere with the penetration of the grabs. Fig. 3 shows then the moment at which the grab is closed to such an extent that the working edges of the cups are approximately vertically under the edges of the deflecting sheets. As shown in the said figure, the larger pieces of material which at that moment are contained between the edges, are exposed to a turning moment which either forces them into the gripper cups or outward. In completely closed state shown in Fig. 1, the working edges of the cups are removed from each other, as well as from the deflecting sheets. Nevertheless, a sufficient closing is produced to prevent the falling out of the material in accordance with its natural angle of slope.

The substantial and novel features of this invention consists therefore in the fact that when the grab is closed, the edges of the cups need not come into contact with each other, the closing of the cups to prevent the escape of the material, being effected by the alternate position of the edges of the cup relatively to the deflecting edges arranged in the interior of the grab.

Having now particularly described and ascertained the nature of my said invention, what I claim and desire to secure by Letters Patent is:—

1. In an automatic grab for material in large pieces, the combination with a frame and cups pivotally mounted on said frame, of a vertically slidable member on the latter, 5 links connecting said member to the upper parts of the gripping cups, and deflecting sheets secured to the lower end of the frame so as to secure the closing of the grab even if the edges of the cups do not meet, substantially as set forth. 10

2. In an automatic grab for material in large pieces, the combination with a frame and cups pivotally mounted on said frame, of a vertically slidable member on the latter,

links connecting said member to the upper 15 parts of the gripping cups, and deflecting sheets secured to the lower end of the frame and extending throughout the whole width of the gripper cups to coöperate with the edges of the cups, substantially as set forth. 20

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM ELLINGEN.

Witnesses:

OSCAR DEPNER,
ALBERT AHN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents.
Washington, D. C."