(No Model.)

3 Sheets—Sheet 1.

C. L. MILLER & J. R. GEORGE.
METAL BREAKING MACHINE.

No. 569,793.

Patented Oct. 20, 1896.

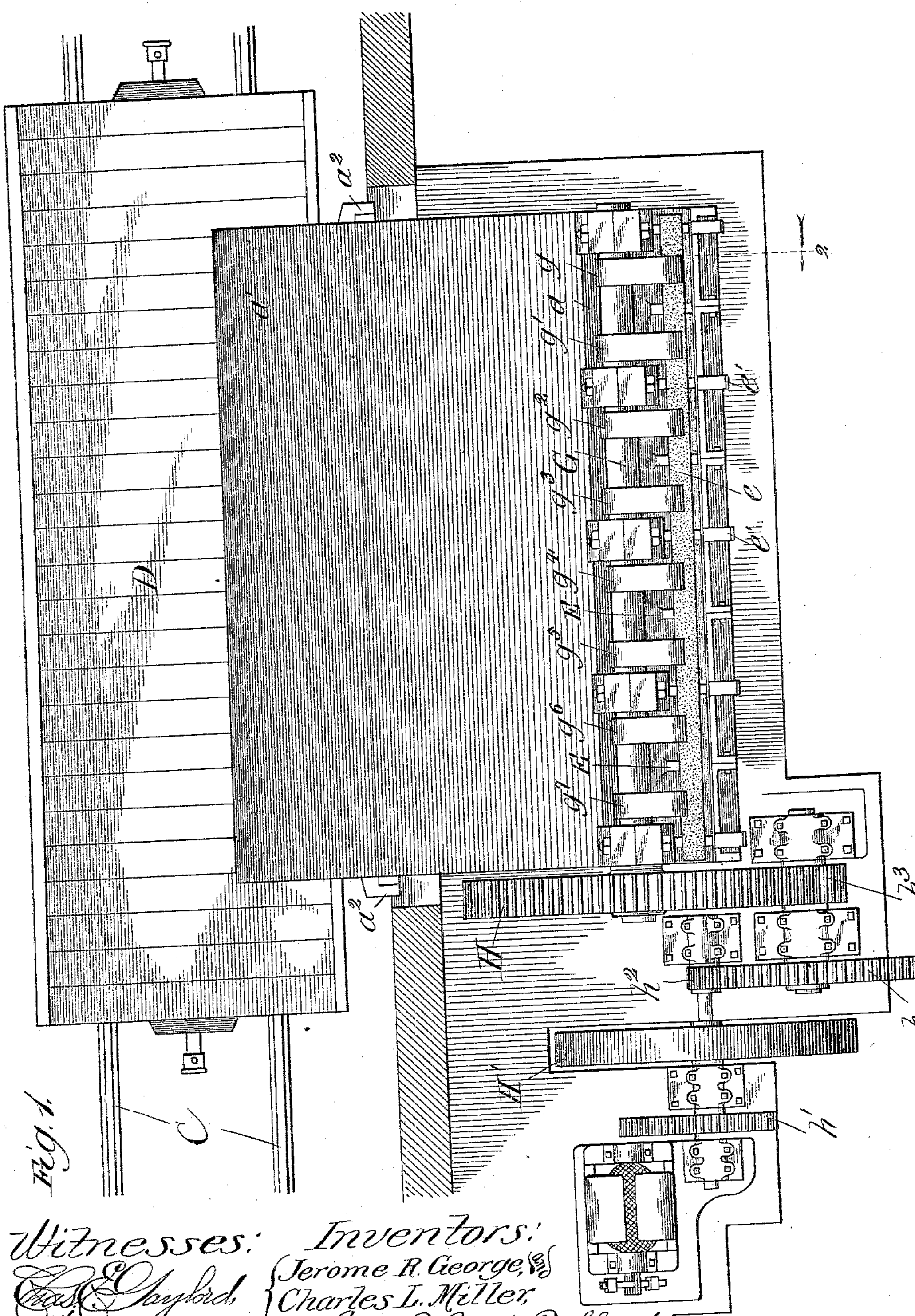

Fig. 1.

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(No Model.)

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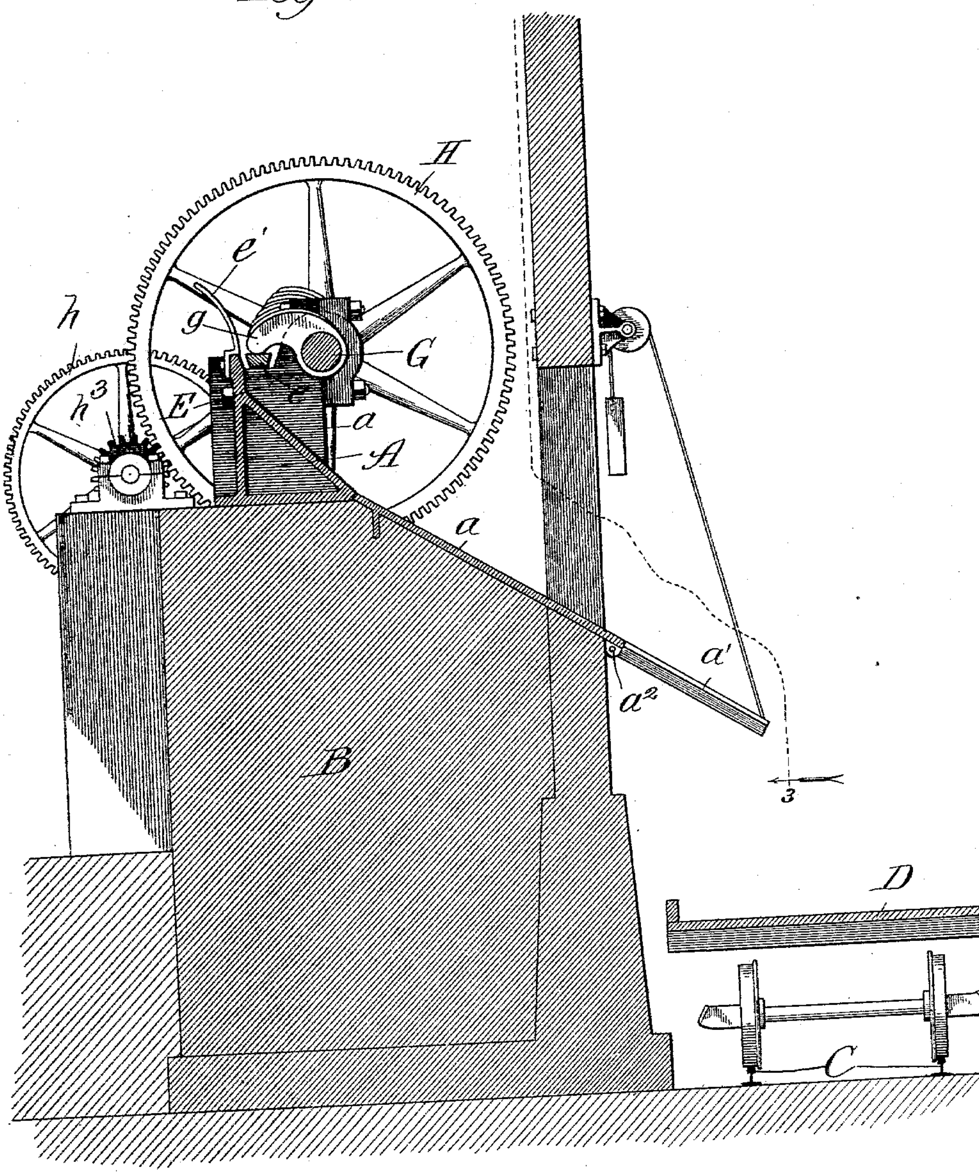
Fig. 2.



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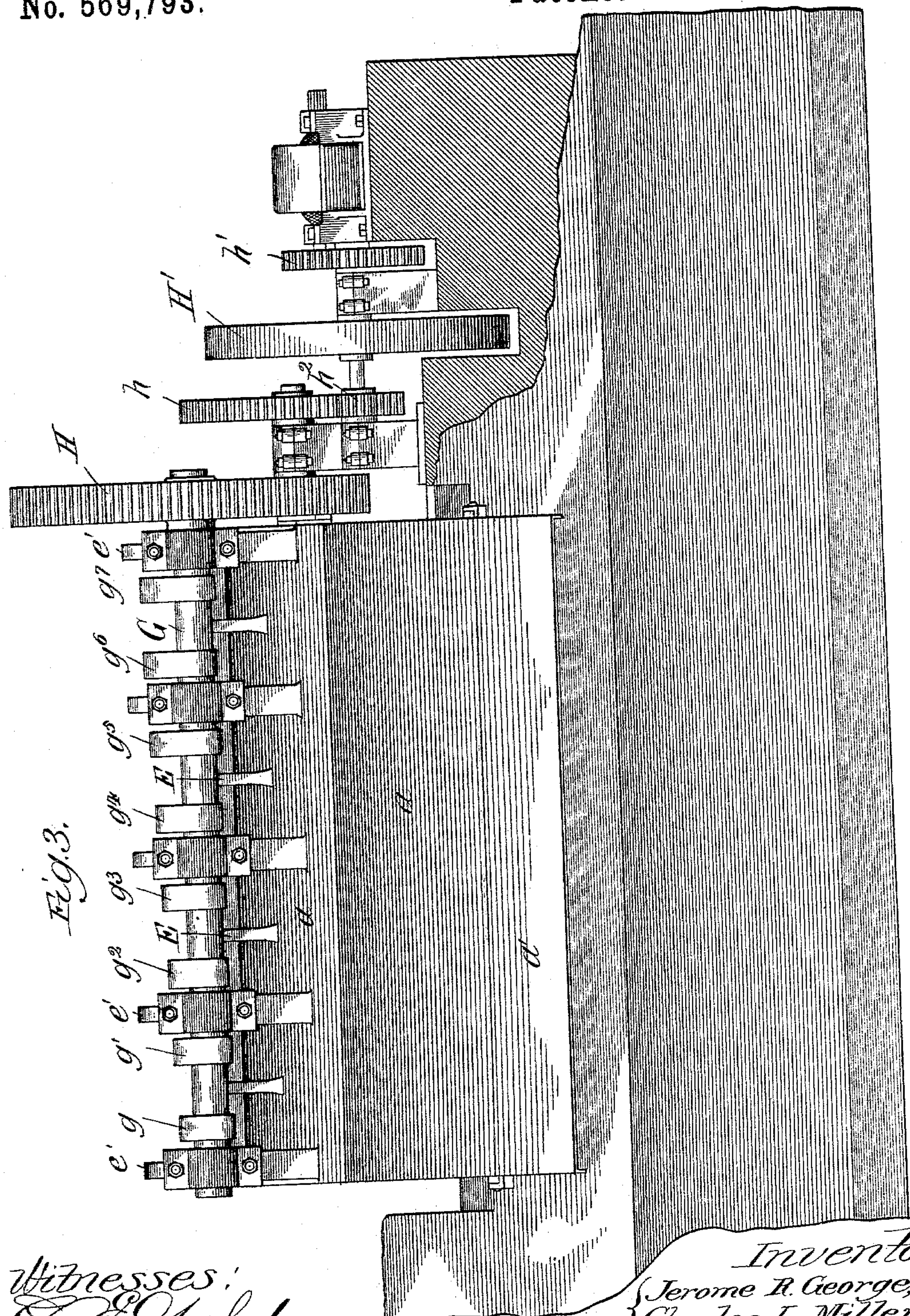

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES L. MILLER AND JEROME R. GEORGE, OF CHICAGO, ILLINOIS.

METAL-BREAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,793, dated October 20, 1896.

Application filed June 29, 1896. Serial No. 597,464. (No model.)

To all whom it may concern:

Be it known that we, CHARLES L. MILLER and JEROME R. GEORGE, citizens of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Metal-Breaking Machines, of which the following is a specification.

This invention relates particularly to machines for breaking cast metal, and has for its object the providing of a simple, economical, and efficient metal-breaker; and the invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a machine built in accordance with our improvements looking at it from the top; Fig. 2, a transverse vertical sectional elevation, taken on line 2 of Fig. 1, looking in the direction of the arrow; and Fig. 3, a front elevation, partly in section, taken on line 3 of Fig. 2, looking in the direction of the arrow.

In the art to which this invention relates it is customary in breaking metal which has been cast into long pieces to feed the piece into the machine in a step-by-step manner, and break it one piece at a time every time the metal is fed forward until the entire piece is broken or disposed of. This is necessarily an expensive and cumbersome way of doing the work in that it takes a long time to break a long piece into eight or ten slabs or smaller pieces, while at the same time requiring mechanism or an operator to stand at the machine the whole time in order to feed the piece forward.

The principal object of our invention therefore is to remove these two objections and provide a machine that will break the long piece into the desired number of smaller pieces at one rotation of the operating-shaft, but which at the same time will merely cut one at a time, as hereinafter described.

In constructing our preferred form of machine in accordance with our improvements we make a frame or base portion A of the desired size, shape, and strength necessary to contain and support the operative machinery. This frame or base portion is arranged on a suitable foundation B, formed principally of masonry, which will raise the machine to such a height that railway-tracks C may be laid adjacent thereto, upon which a gondola or flat car D may be run adjacent to the machine, so as to receive the broken metal, as hereinafter described. This framework is provided with a series or set of supporting anvil portions E, arranged to hold the piece of metal *e* in position to be operated upon. In order to guide the piece quickly and efficiently to the position to be operated on, we prefer to provide fingers *e'*, curved in the right direction, so that all the operator has to do is to practically bring the metal to a correct position longitudinally with the machine and drop it on these fingers, which guide it rapidly to place. The pieces may be fed into the machine by manual labor or by the use of cranes or similar mechanism.

In order to break the metal into the desired number of pieces at one rotation of the shaft, we provide what we term a "rotating" breaking-shaft G, and provide it with a set of breaking-lever arms g, g', g^2, g^3, g^4, g^5, g^6, and g^7, that are arranged in different longitudinal planes with relation to the longitudinal center of the shaft, so that during the rotation of the operating-shaft the breaking-arm g will first contact the metal, as shown in Fig. 2 of the drawings, and break off that portion extending out from the face of the anvils E. The remaining breaking-arms will then act successively, so that but one piece is broken at a time; but during the rotation of the shaft the entire piece is broken into the desired number of smaller pieces. By this arrangement it will be seen that the breaking-shaft has only been subjected to the strain incident to the breaking of one piece. Further, it will be noticed that no feeding forward is necessary. All that is required is for the operator to lay the metal slab on the anvil, which is done both economically and efficiently by the aid of the fingers, the breaking-arms operating successively to break it into the desired number of smaller pieces at one rotation of the shaft.

The frame portion of the machine is provided at *a* with an inclined portion that receives the broken pieces and discharges them to the front of the machine and onto a car or vehicle, on which it may be transported to a point of shipment or storage. This inclined portion has an extending swinging apron por-

tion a', that is pivoted at a^2, so that it may be swung up or down out of the way to allow a box-car or engine to pass by the same.

In order to operate the machine and transmit power from a suitable source, we provide a train of compound gearing, comprising suitable gears H h h' and pinions h^2 h^3, together with the driving-pulley H'. This compound gearing is for the purpose of reducing the speed and increasing the power; and we do not desire to be limited to this particular form, but to adopt any well-known or modified form of gearing which the particular conditions or circumstances may require.

While we have described our invention in one specific structure with more or less minuteness as regards details and as being embodied in certain precise forms, we do not desire to be limited thereto unduly any more than is pointed out in the claims. On the contrary, we contemplate all proper changes in form, construction, and arrangement, the omission of immaterial parts and the substitution of equivalents, as circumstances may suggest or render expedient.

We claim—

1. In a metal-breaker, the combination of a supporting portion for the metal piece or bar, and a rotating shaft provided with a plurality of breaking-lever arms arranged to strike the metal bar and break it into a plurality of smaller pieces during one rotation of the shaft, substantially as described.

2. In a metal-breaker, the combination of a supporting portion for the metal, a rotating shaft, and a plurality of breaking portions arranged to be operated by the shaft to act successively and break up a bar one piece at a time, substantially as described.

3. In a metal-breaker, the combination of a plurality of supporting portions or anvils, a rotating shaft, and a plurality of breaking-lever arms arranged to be actuated thereby and so as to contact the metal bar successively and break it into a desired number of pieces during one rotation of the shaft, substantially as described.

4. In a metal-breaker, the combination of a supporting portion for the metal, a rotating shaft provided with a plurality of breaking-lever arms arranged thereon so as to strike the metal bar successively and break it into a desired number of pieces during one rotation of the shaft, and means for guiding the metal bar into the desired position, substantially as described.

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