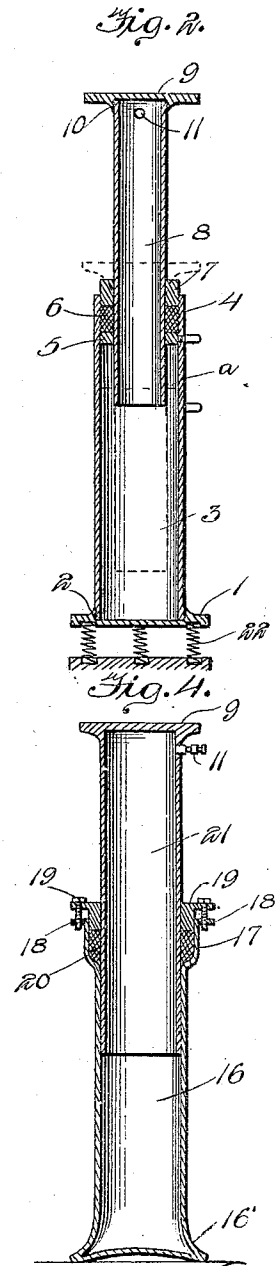
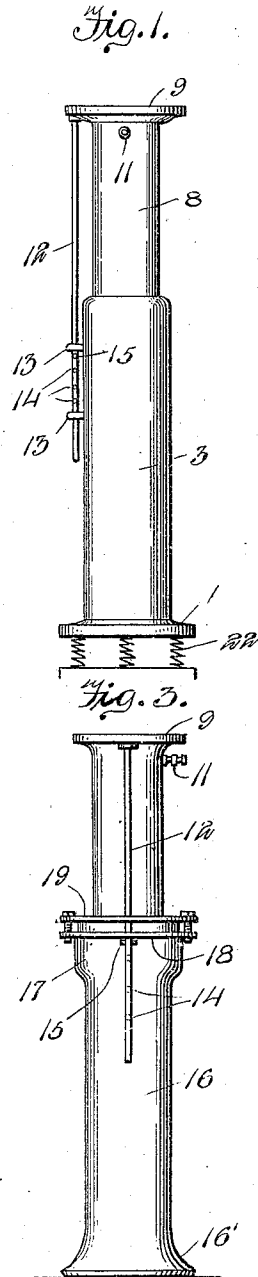


G. E. FREEBORN.
ANVIL.
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940,798.

Patented Nov. 23, 1909.



Witnesses
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331

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UNITED STATES PATENT OFFICE.

GRANT E. FREEBORN, OF BELFAST, NEW YORK.

ANVIL.

940,798.

Specification of Letters Patent.

Patented Nov. 23, 1909.

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To all whom it may concern:

Be it known that I, GRANT E. FREEBORN, a citizen of the United States, residing at Belfast, in the county of Allegany and State of New York, have invented certain new and useful Improvements in Anvils, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to improvements in anvils, and has special reference to an anvil, which is adjustably supported by hydraulic and pneumatic means combined. This particular form of what I term "hydropneumatic" anvil, is specially designed to reduce the noise and also the jar occasioned by the striking of anvils, as now made, the same being further provided with means, whereby different heights of the anvil proper may be had, so as to accommodate itself to the use of different sized operators. To this end, I construct a closed end cylinder, having a support or base upon its lower and closed end, its upper end is open. Slidably mounted within the upper open end, is the upper cylinder having its upper end closed with the anvil plate, while its lower open end fits within the open end of the lower cylinder. By this means it will be seen that one cylinder will slide within the other. At the open end of the lower cylinder and around the sliding cylinder, I mount a stuffing ring or box, whereby no escape is allowed between the two. In order to support the anvil cylinder hydraulically and pneumatically, the lower cylinder is filled with a liquid, preferably oil, up to about the stuffing box, or below the lower open end of the anvil cylinder. The anvil cylinder is provided with a valved air inlet, and by this means air is forced by pressure into said anvil cylinder, and by this means the anvil cylinder is cushionedly supported upon the air and oil. In order to adjust the anvil to the desired height and also to retain the anvil cylinder against the air pressure, I provide a rod, as will presently appear.

15 In order to more clearly illustrate the construction of my anvil, attention is invited to the accompanying drawings, in which:—

Figure 1 is a side elevation of the complete anvil. Fig. 2 is a vertical central sectional view. Fig. 3 is a side elevation of a modified form, and Fig. 4 is a vertical central section thereof.

Referring to the drawings:—The numeral

1 designates the base plate or disk, in which is mounted by means of the threaded portion 2, the lower end of the supporting column or cylinder 3, the upper end 4, thereof being interiorly threaded and fitted with the lower ring 5, the gasket or stuffing 6, and the adjusting ring 7. This column is adapted to be filled with a liquid up to about the line *a*, this liquid being preferably oil, which does not readily evaporate or freeze or it could be water. It simply is my idea to use a liquid. Slidably mounted in the stuffing box, which is formed by the rings 5 and 7 and the gasket 6, is the anvil supporting cylinder or column 8, whose lower end is open, and whose upper end is closed by the anvil or plate 9, which may be made of any desired form, but is preferably circular, and connected to the column 8 by means of the threads 10. The open end of this column extends into the liquid *a*, and in order to provide an air cushion for the column 8, I provide the column with the air inlet valve 11, which is similar to the connection and valve used upon pneumatic tires, in order that air may be forced into the same, by means of a pump similar to those used in tires. It will thus be seen that when the anvil is out of use, the columns telescope, and when it is desired to use the same, air is forced into the column 8, exerting a pressure which, with the fluid, causes the column 8 to rise; and in order to limit the rise of the column and make its anvil adjustable to different heights, I employ the rod 12, which is carried upon the under side of the anvil and extends through a lug 13 upon the upper end of the lower cylinder, this rod being provided with a series of openings 14, in which is removably mounted the pin 15. This form of anvil is made more particularly from pipes and small casting, and by reason of its cheapness, is my preferred form.

In the form of anvil illustrated in Figs. 3 and 4, the lower column 16 is provided with the flaring base 16', and the flared mouth or upper end 17. This upper end terminates in the annular flange 18, which in conjunction with the wedging ring 19 and its bolts adjustably holds the packing 20 in place, to form a tight joint around the slidably mounted anvil-supporting column 21, which may or may not be of exactly the same construction as the one shown in Figs. 1 and 2.

To insure greater resiliency to my anvil

and also assist in deadening the noise occasioned by striking the anvil, a spring base 22 may be employed.

From this construction, it will be seen
5 that by employing varied pressures within the anvil supporting column, that I can regulate the cushioning effect upon the same, that is I can make the anvil practically rigid by a greater pressure, yet at the same time
10 dispense with the noise and the sudden jar occasioned upon the solid anvils as now used.

What I claim, as new, is:—

An anvil comprising a base having a
15 cylindrical receptacle rising upward therefrom and open at its upper end, a hollow

column slidably mounted in said receptacle, an anvil carried upon and closing the upper end of the column, said receptacle containing a liquid for supporting the column with
20 an air space within the column above the liquid, a valved inlet in the upper end of the column whereby air is admitted into said column, and co-acting means carried by the exterior of the receptacle and the column
25 whereby the height of the anvil is regulated.

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

GRANT E. FREEBORN.

Witnesses:

CHAS. R. GANTS,
DAVID P. MOORE.