

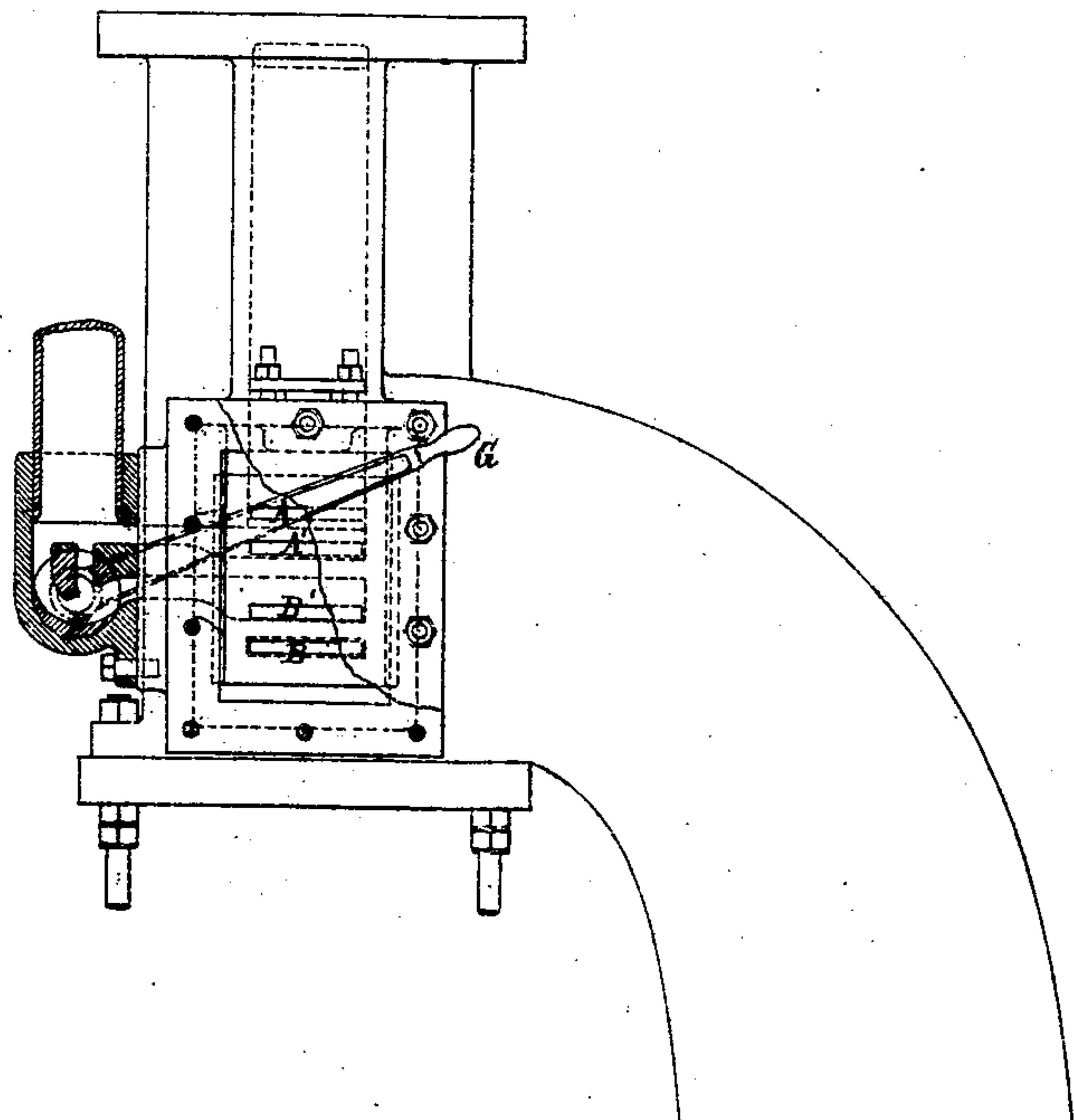
C. SELLERS

Improvement in Automatic Steam-Hammers.

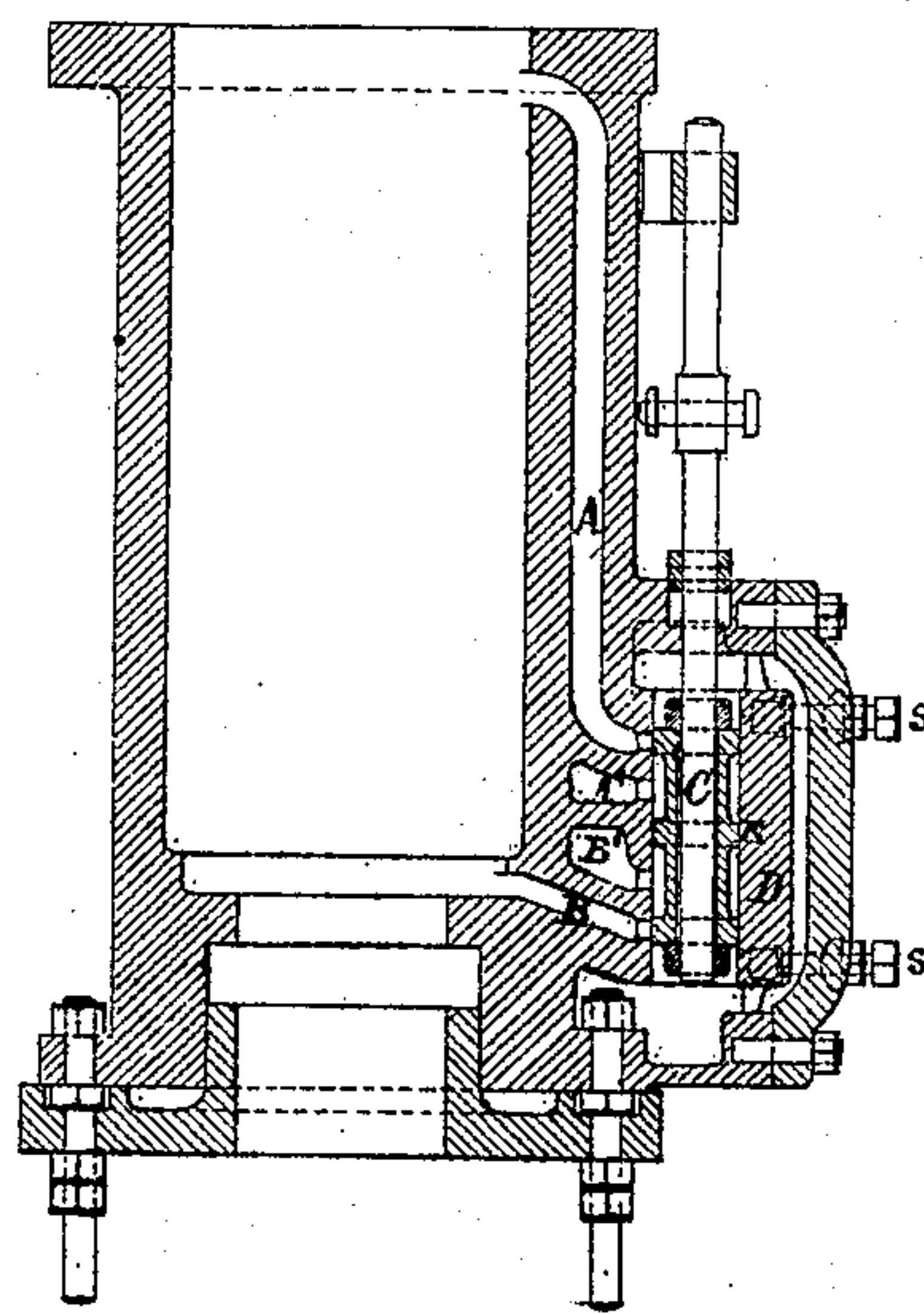
No. 132,374.

Patented Oct. 22, 1872.

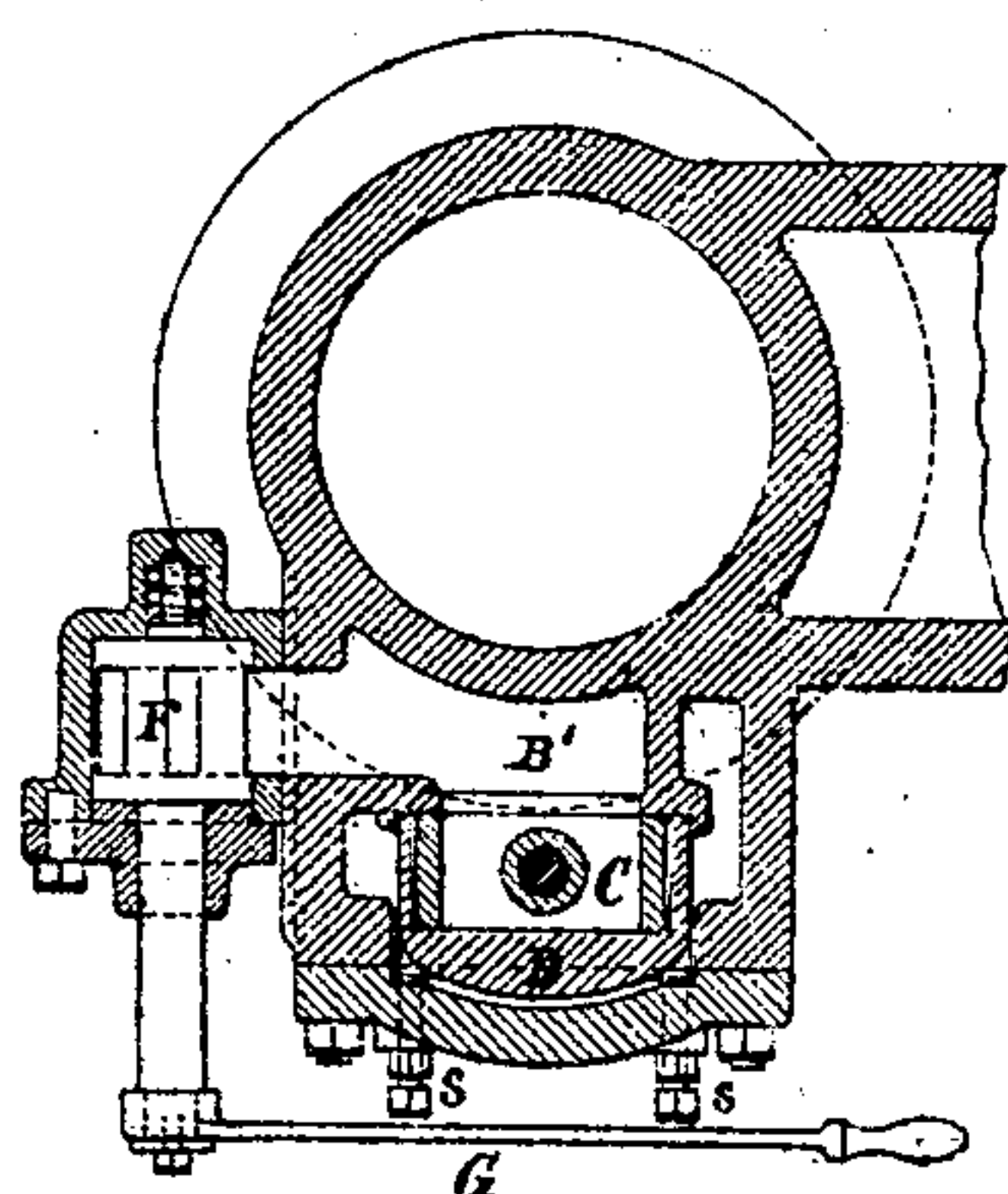
—Fig. 2—



—Fig. 1—



—Fig. 3.—



Witnesses:

Theodore Bergner.
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1115

UNITED STATES PATENT OFFICE.

COLEMAN SELLERS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN AUTOMATIC STEAM-HAMMERS.

Specification forming part of Letters Patent No. 132,374, dated October 22, 1872.

To all whom it may concern:

Be it known that I, COLEMAN SELLERS, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Automatic Steam-Hammers, of which the following is a specification:

My invention relates to improvements in automatic steam-hammers, whereby the intensity of blow may be diminished without a corresponding decrease in the number of blows struck in a given time.

In direct-acting steam-hammers, where the steam is admitted automatically below the pistons to raise the hammer, and then is admitted above the piston to drive it down, the maximum intensity of blow is obtained with the greatest freedom of exhaust below the piston, so that the weight of the hammer, plus the steam pressure above the piston, shall act to produce a blow with the least resistance from the escaping steam below the piston. With this freedom of action the greatest speed is also obtained. To diminish the force of the blow by diminishing the influx of steam also diminishes the rapidity of the strokes.

With some kinds of work light quick blows are required. I effect this result by making two distinct exhaust-ports on the valve-seat, and discharge the steam through separate passages from the valve, and by arranging a valve in the exhaust-passage which communicates with the end of the cylinder below the piston. By closing this valve in the exhaust the steam is confined below the piston, and the force of the blow is diminished.

In Figure 1, A is a steam-passage to upper end of cylinder; B, steam-passage to lower end of cylinder. A' and B' are corresponding exhaust ports and passages. The valve C has a partition, E, which separates the exhaust in place of allowing it to escape through one common passage, as in ordinary practice. F, Figs. 2 and 3, is a valve or cock which regulates the exhaust-opening B', and when closed entirely prevents the escape of steam from below the piston. The valve C, which is here shown, is one of the balanced kind sliding inside a hood or bonnet, D. The hood D is held down by screws S S passing through the steam-chest cover. A lever, G, controls the valve F, and enables the hammer man to regulate the intensity of the blow by throttling the exhaust.

When the steam below the piston is prevented from escaping freely it forms an elastic spring catching the descending hammer and diminishing the force of the blow. At the same time the steam so compressed aids in expediting the next up-stroke of the hammer with a manifest economy of steam.

In tilting steel to finish, a light quick blow is needed, and necessitates the use of small hammers. By the use of my invention hammers capable of doing heavy work can be made to strike light enough to finish small sizes. The rapidity of the blow is dependent mainly on the rapidity of the up-stroke. With my invention the quickness of the up-stroke is not diminished, while the force of the down-stroke is moderated by the throttled exhaust.

I am aware that steam-hammers have been arranged with a means of throttling the exhaust, but this throttling was of the exhaust from both ends of the cylinder. My invention contemplates the valve in the exhaust below the piston only.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an automatic steam-hammer, of steam-passages leading from each end of the cylinder, an independent exhaust-passage for each steam-passage, and a valve separating the exhaust-passages, these members being constructed to operate in combination substantially as set forth.

2. The combination, in an automatic steam-hammer, of steam-passages leading from each end of the cylinder, independent exhaust-passages, and a throttle-valve regulating the escape of steam from the lower end of the cylinder only, these members being constructed to operate in combination, substantially as set forth.

3. The combination, in an automatic steam-hammer, of steam-passages leading from each end of the cylinder, independent exhaust-passages, a main-valve separating said exhaust-passages, and a throttle-valve regulating the exhaust below the piston, these members being constructed to operate in combination, substantially as set forth.

COLEMAN SELLERS.

Witnesses:

THEODORE BERGNER,
JAS. C. BROOKS.