

*S. Remington,
Drop-hammer,
No 40,769, Patented Dec. 1, 1863.*

Fig: 3.

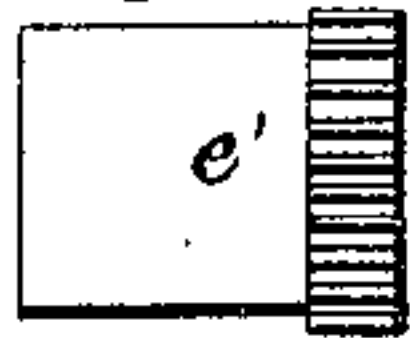


Fig: 4.



Fig: 5.

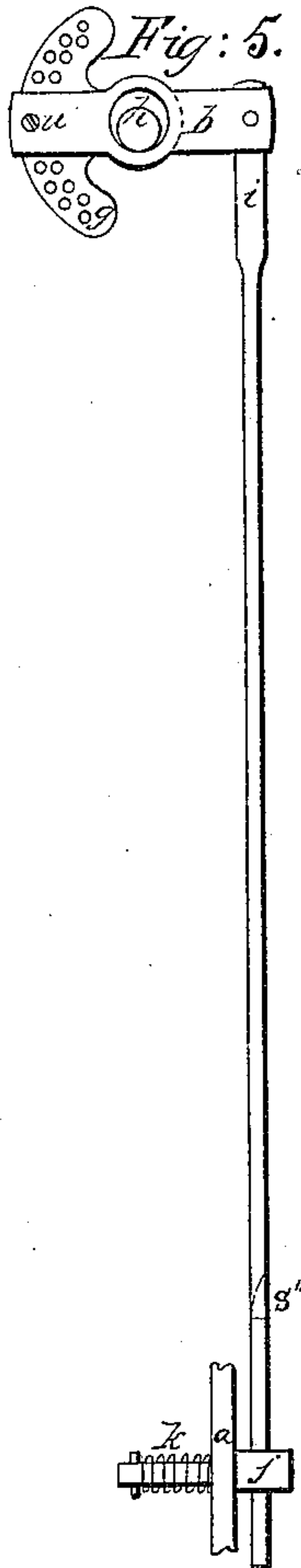


Fig: 1.

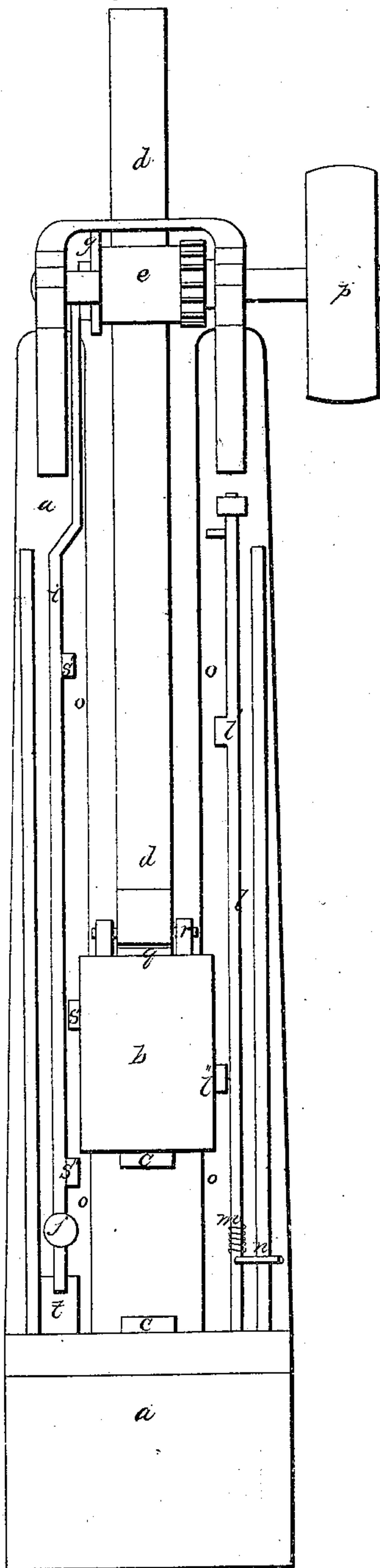
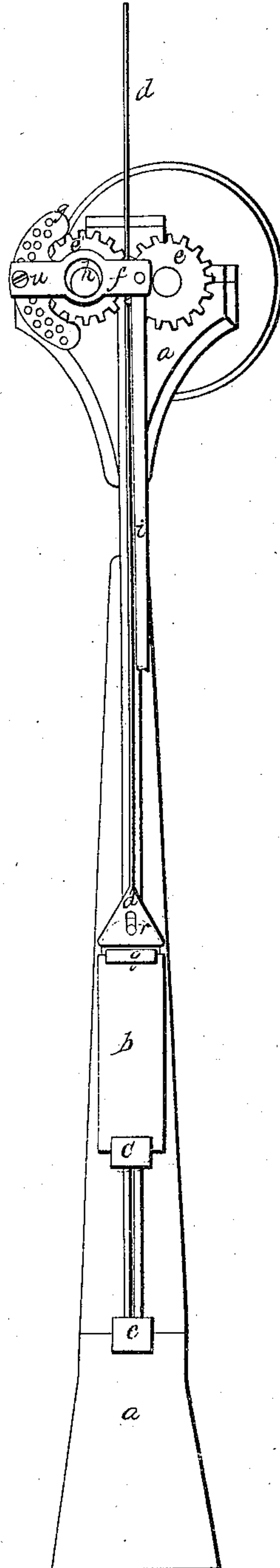


Fig: 2.



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Inventor:

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UNITED STATES PATENT OFFICE.

SAMUEL REMINGTON, OF ILION, NEW YORK.

IMPROVEMENT IN DROP-PRESSES.

Specification forming part of Letters Patent No. 40,769, dated December 1, 1863.

To all whom it may concern:

Be it known that I, SAMUEL REMINGTON, of Ilion, in the county of Herkimer and State of New York, have invented a new and Improved Drop-Hammer; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters indicate the same devices in all the figures.

To enable others skilled in the art to make and use my invention, I will proceed to describe its nature, construction, and operation.

My invention relates to that kind of drop-hammer which has its head drawn up by two rolls acting upon a strap which is attached to the hammer-head; and its nature consists in the combination of an arm and are with adjusting-holes therein, with and for making one of the rolls adjustable, so as to provide for the wearing of the strap or rolls and their bearings.

Figure 1 is a front elevation of my improved drop-hammer. Fig. 2 is a vertical section of the same. Fig. 3 is an elevation of the loose roll. Fig. 4 is an elevation of the eccentric shaft. Fig. 5 is an elevation of the devices for giving motion to the loose roll, so as to cause it to press the strap against the driving-roll and also the adjusting device.

a is the frame; *b*, hammer-head; *c*, dies; *d*, strap; *e*, driving-roll; *e'*, loose roll; *f*, lever; *g*, adjusting-segment; *h*, eccentric shaft; *i*, shifting rod; *j*, support of same; *k*, spring of same; *l*, tripping-rod; *l'*, projection on same; *l''*, projection on hammer-head; *m*, spring of tripping-rod; *n*, lever of same; *o*, ways upon which the hammer-head slides; *p*, driving-pulley; *q*, cushion between the strap and hammer-head; *r*, pin which attaches the strap to the hammer-head; *s*, projection upon the hammer-head; *s'*, and *s''*, projections upon the shifting rod; *t*, ledge to hold up rod *i*; *u*, adjusting-screw.

The operation of my improved drop-hammer is as follows: While in use the driving-pulley *k* and driving-roll run continuously. The rod *i*, acting by its weight upon the end of lever *f*, causes the eccentric shaft *h* to turn upon its bearings, bringing the roll *e'* in close proximity to the roll *e*, pressing the strap *d* against the driving-roll with so much force that this strap, with the hammer-head at-

tached, is drawn upward by the motion of said driving-roll. During the motion upward of the head of the hammer the projection *l''* passes up behind the projection *l'*, the tripping-rod *l* turning upon its axis, so as to make room for *l''* to pass. When *l''* is above *l'*, the rod *l* is caused to return to its position by spring *m*, bringing *l'* directly under *l''*. After *l''* has passed *l'*, projection *s* strikes the under side of *s'*, carrying rod *i* upward till its lower end rests upon the top of ledge *t*, and is held there by spring *k*. While in this position the rolls cease to act upon the strap, and the head *b* falls a little till *l''* rests upon the top of *l'*, suspending the hammer-head at the proper height. When the work to be forged has been placed upon the lower die, the tripping-rod is turned a little upon its axis by means of lever *n*, carrying *l'* out from under *l''*, when the hammer-head falls upon the work. As the head falls *s* passes down behind *s''*, throwing rod *i* off ledge *t*, when the rolls are again made to act upon the strap by the weight of the rod, and the process above described is repeated.

In my improved drop-hammer I derive a great advantage from the employment of a metallic strap instead of the leather one in common use, as the action of the rolls upon it does not compress it. It is therefore more durable and less liable to get out of order, but is necessary to prevent the injurious concussion caused by the fall of a metallic or rigid strap upon the hammer-head by introducing between these a spring-cushion of some kind. I prefer rubber, but steel may be used with equal facility. The constantly-decreasing thickness of a leather strap when acted upon by the rolls of a drop-hammer renders it an unfit material for such a purpose, as it is necessary to the successful working of the hammer that the rolls be always carefully adjusted to its thickness. Even when a metallic strap is used, the wear upon its surface and the surface of the rolls, and the wear of the bearings of the eccentric shaft, is so great that it is necessary to have some means of adjusting the rolls in relation to each other and to the shifting rod independent of the action of lever *f* upon shaft *h*, for the reason that the wearing of the several parts allows the shifting rod *i* to drop down too low, and, consequently, when raised it acts too soon upon the rolls and separates

them before l'' catches upon l' , thus deranging the operation of the hammer. It is necessary, therefore, that the shifting and tripping rods, with their projections and the projection upon the hammer-head, should always be kept in a correct relative position. To accomplish this, I have made the loose roll adjustable in relation to the driving-roll and the shifting rod, so as to provide for the wear of the several parts before mentioned. The adjusting devices shown in Fig. 5 I have found most convenient for this purpose. The segment g is fastened permanently to the eccentric shaft h , while lever f is fitted so as to turn upon shaft h , and may be adjusted to any position in relation to said shaft by screw u , which fastens it to segment g at any point required. Thus, if it be found that the wearing of the several parts allows the rod i to fall so low as

to derange the operation, the hammer-screw u may be withdrawn, the rod i raised to the desired point, and the screw put back into a lower hole in the segment. In this way the loose roll may readily be adjusted in relation to the shifting rod and the driving-roll.

Having described my invention, what I claim, and wish to have secured to me by Letters Patent, is—

The employment of the lever f and its pin or screw u , segment g , and its adjusting-holes with the adjustable roll e' , when combined with roll e , and the shifting rod i , or its equivalent, as and for the purpose herein specified.

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