

J. T. Bruen.

Bending Couplings.

N^o 55,813.

Patented June 26, 1866.

Fig. 1.

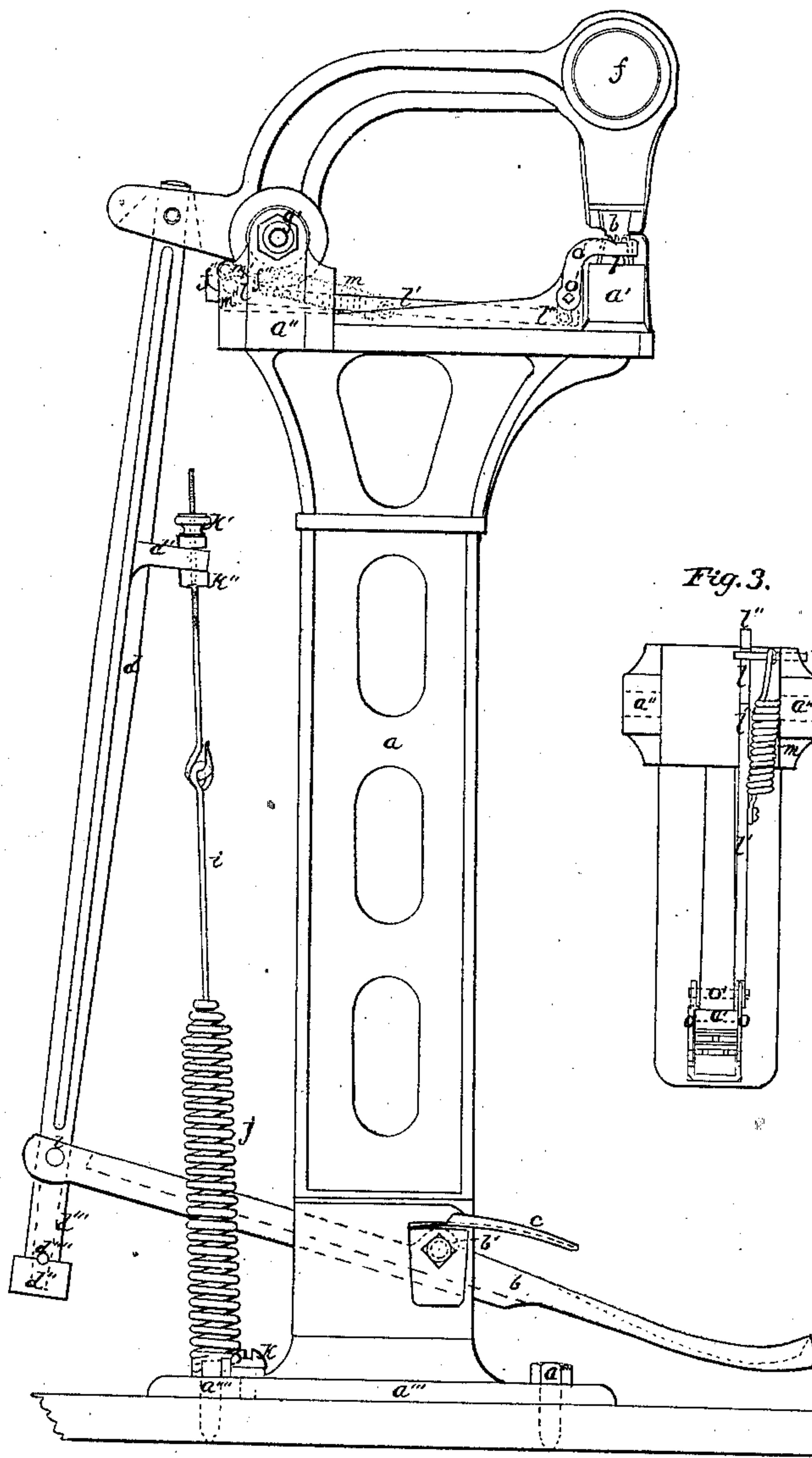


Fig. 2.

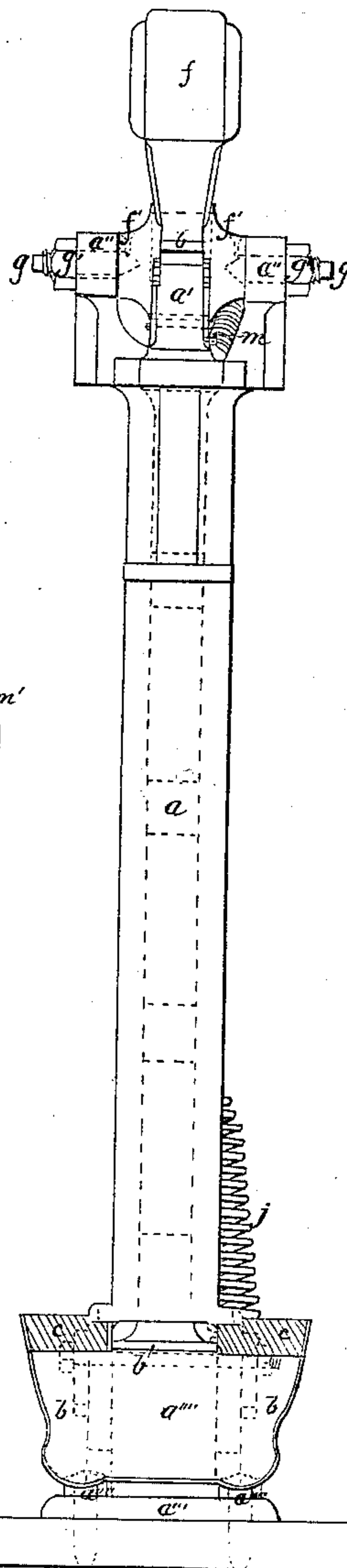
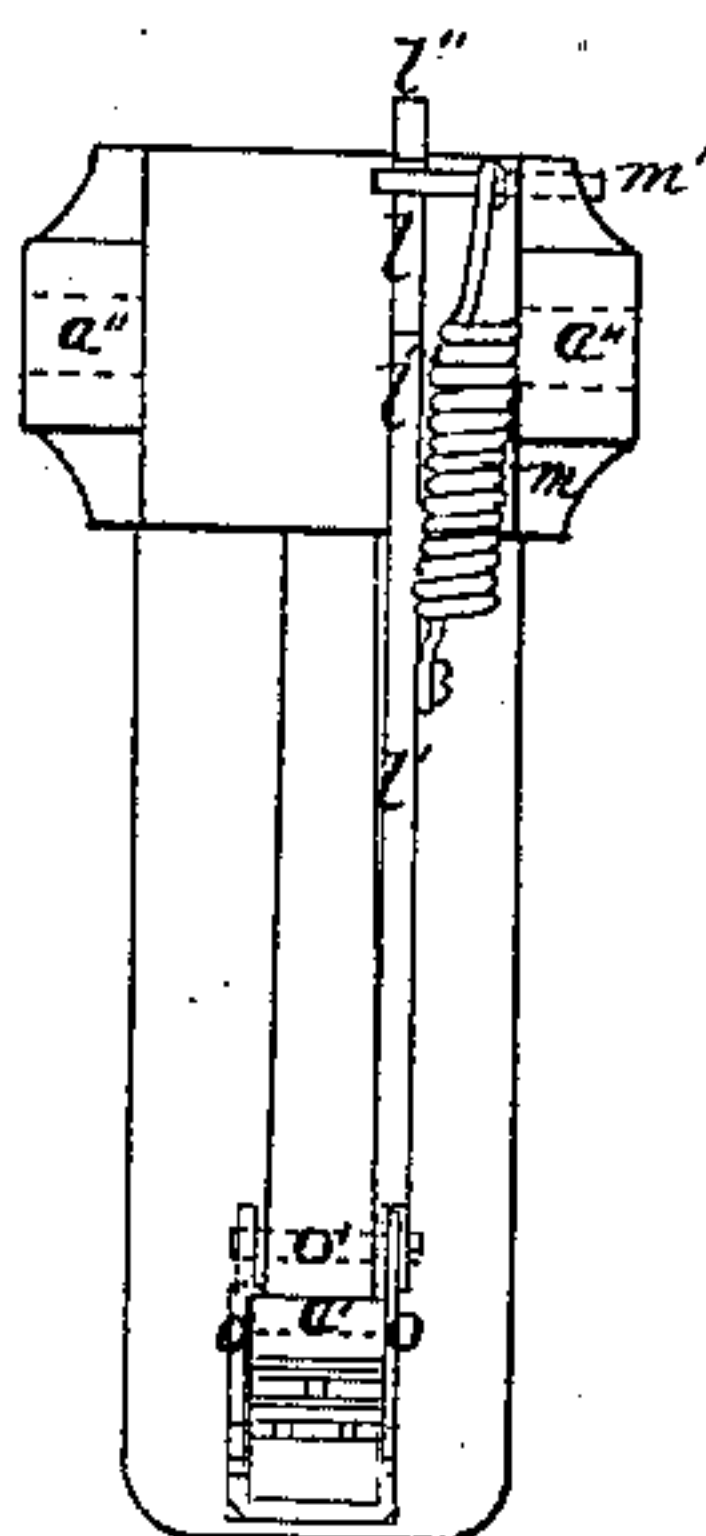


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN T. BRUEN, OF NEW YORK, N. Y.

IMPROVEMENT IN HAMMERS FOR BENDING, COUPLING, &c.

Specification forming part of Letters Patent No. 55,813, dated June 26, 1866.

To all whom it may concern:

Be it known that I, JOHN T. BRUEN, of the city, county, and State of New York, have invented a new and useful Improvement in Hammers for Bending, Coupling, or Shaping Metallic Articles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a front elevation; Fig. 3, a top view of the stand.

The same letters indicate like parts in the three figures.

This invention consists in a novel arrangement of a hammer and anvil, and a treadle and connections for operating the hammer, whereby a very effective action of the hammer is obtained for such purposes as coupling the ends of skirt-springs by means of clasps, connecting telegraph-wires, connecting parts of umbrella, bonnet, or hat frames, and for such other purposes for which drop-hammers are commonly used.

It also consists in a novel arrangement of means for throwing out the work from the anvil or dies after the operation of the hammer; also, in a novel arrangement of checks for the protection of the faces of the hammer, anvil, and dies from injury; and, further, in a novel arrangement of a spring or buffer to regulate the stroke of the hammer and prevent destructive concussion and noise.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

a represents a cast-iron stand provided with an anvil, *a'*, and ears *a''*, to receive the hammer, and with a base-plate, *a'''*, secured to the floor by bolts, marked *a''''*, having an opening, *a'''''*, (see Fig. 2,) intended to receive the treadle *b*, vibrating on bolt *b'*, which secures to each side of the stand, immediately above the treadle, a foot-rest, *c*. The treadle is hinged to a connecting-rod, *d*, by means of a pin, *e*, and this again to the hammer by means of pin *e'* in the tail of the hammer, into which a slot is cast to receive it.

Hammer *f* vibrates on two steel set-screws, *g*, which are screwed into ears *a''*, and secured by jam-nuts *g'*. The hammer is provided with two oil-holes, *f'*, Fig. 2. The connecting-

rod is provided with a bracket, *d'*, through which a threaded tension-rod, *i*, passes, which connects with a spiral spring, *j*, secured to the base-plate by screw *K*. This spiral spring is adjusted to a proper tension by means of a thumb-nut, *K'*, which is secured in position by jam-nut *K''*. The proper strength of said spiral spring consists in an adequate force to raise the preponderating weight of the hammer to a proper elevation by means of said connecting-rod, in such a manner that when the hammer has been raised the spiral spring will have receded to its normal position.

The connecting-rod is provided with an annular india-rubber spring, *d''*, at its lower extremity, which is held in position by means of an india-rubber hose, *d'''*, intervening between it and the treadle and secured by a pin, (marked *d''''*.) The purpose of the annular india-rubber hose and spring at the lower extremity of the connecting-rod is to neutralize the noise, determine the stroke of the hammer, and prevent concussive jar of the same on its fulcrum.

In the nave of the hammer a toe, *f''*, is inserted, working in an indentation, *l*, in vibrating bar *l'*, which is held in position by spiral spring *m*, attached thereto at one end, and held at the other by pin *m'*. The indentation in this vibrating bar has an inclination, *l''*, drawn against the pin *m''*, and is held in position by said spring *m*, the force of which operates against it because its position inclines upward.

The vibrating bar is hinged at *l'''* to a hooked finger, *o*, on one side of the anvil, and connected through a fulcrum-pin, *o'*, with a similar finger, *o*, on the opposite side. The upper edge of these fingers, vibrating close to the ends of the dies *p*, are so shaped and hooked as to lift the coupled material free from the dies and throw it out. Spiral spring *j*, in raising the hammer, brings the toe *f''* in contact with a shoulder, *l''''*, on the vibrating bar *l'*, thereby causing the fingers *o* to vibrate, and so to force the material from the dies which has been coupled or operated upon.

The principle upon which my bending and coupling hammer is constructed is that of creating and transmitting a great momentum to the hammer by a slight but sudden depression of the treadle through the heel of the operator.

While the feet of the operator are at all times greatly relieved through the provision of foot-rests, either or both heels may, with this arrangement, be used in working the machine.

The hammer when up being in a position approaching a perpendicular to its fulcrum, its preponderating weight forward is thereby proportionably decreased, while the resistance of the spiral spring, being then in its normal position, is at zero. It will hence readily appear that the least touch of the heel of the operator upon the treadle will cause and develop a great momentum in the descent of the hammer to the plane of the anvil, which momentum will overcome the resistance of the spiral spring until the office of the hammer has been performed, when, aided by the rebound of the hammer, the tension of the spiral spring is sufficient to quickly raise the hammer again and to throw out the material which has been operated upon.

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

1. The anvil, the hammer, the connecting-rod, and the treadle, when constructed and arranged substantially as and for the purpose herein specified.

2. The apparatus for throwing out the material after the successive operations of the hammer, applied, arranged, and operating substantially as herein specified.

3. The annular spring or buffer *d''*, applied at the lower end of the connecting-rod, substantially as described, and serving the two purposes of regulating the stroke of the hammer and of preventing destructive concussion and noise.

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Witnesses:

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