

S. J. SEELY.

Machine for Forging Nails.

No. 17,941.

Patented Aug. 4, 1857.

Fig. 1.

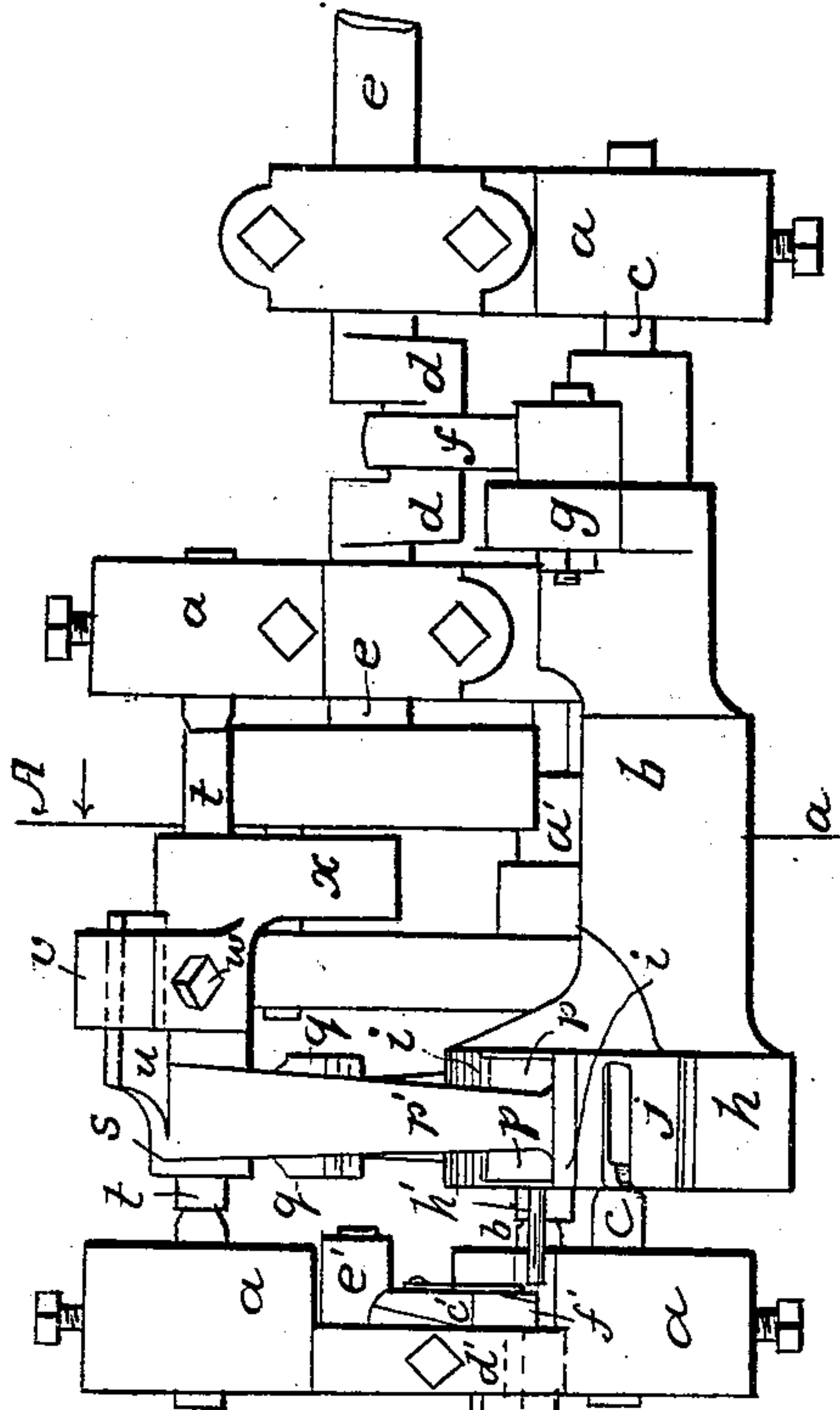


Fig. 4. B.b.

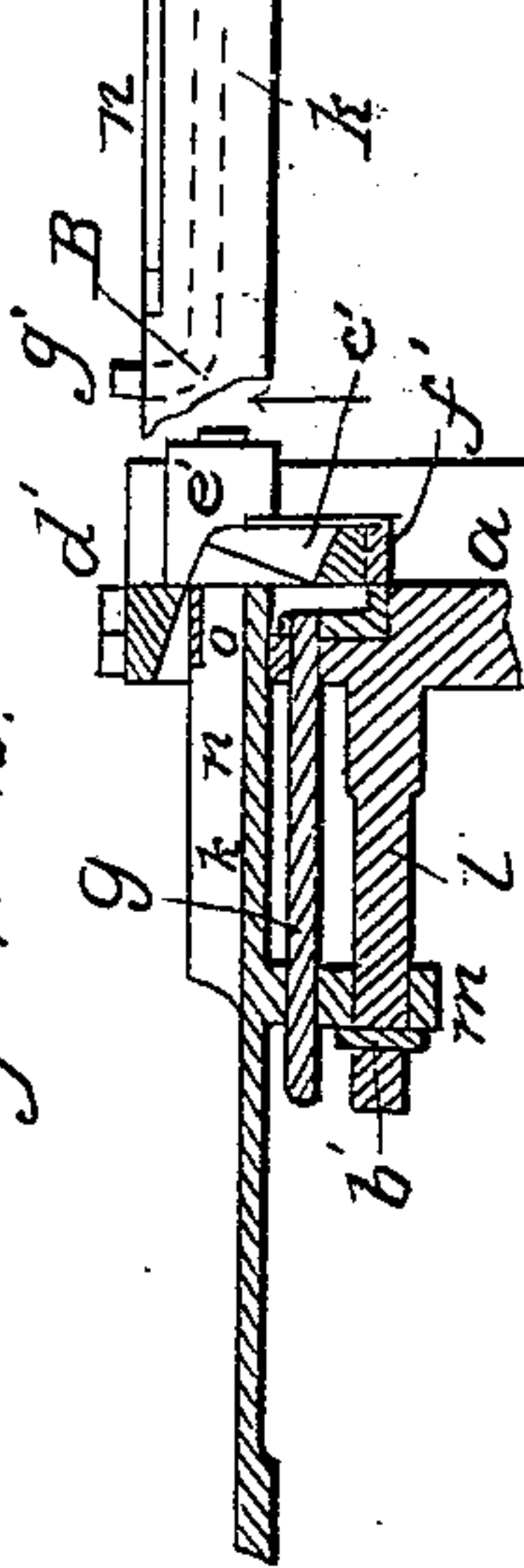


Fig. 3. Aa.

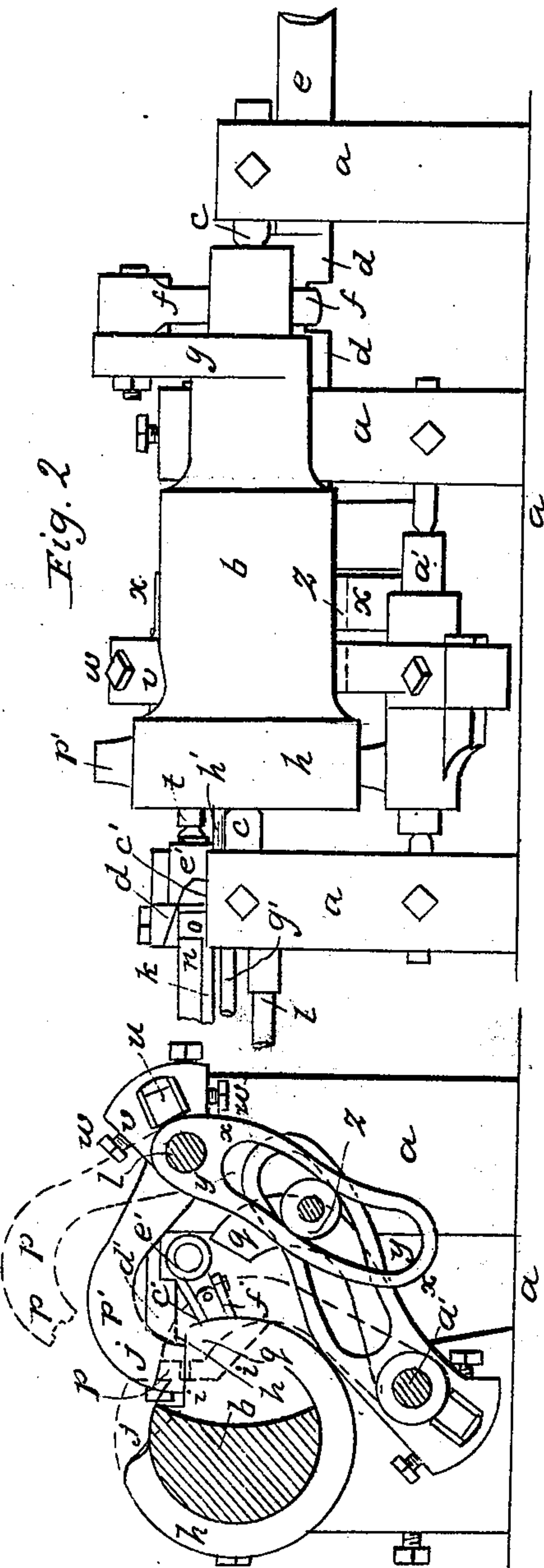
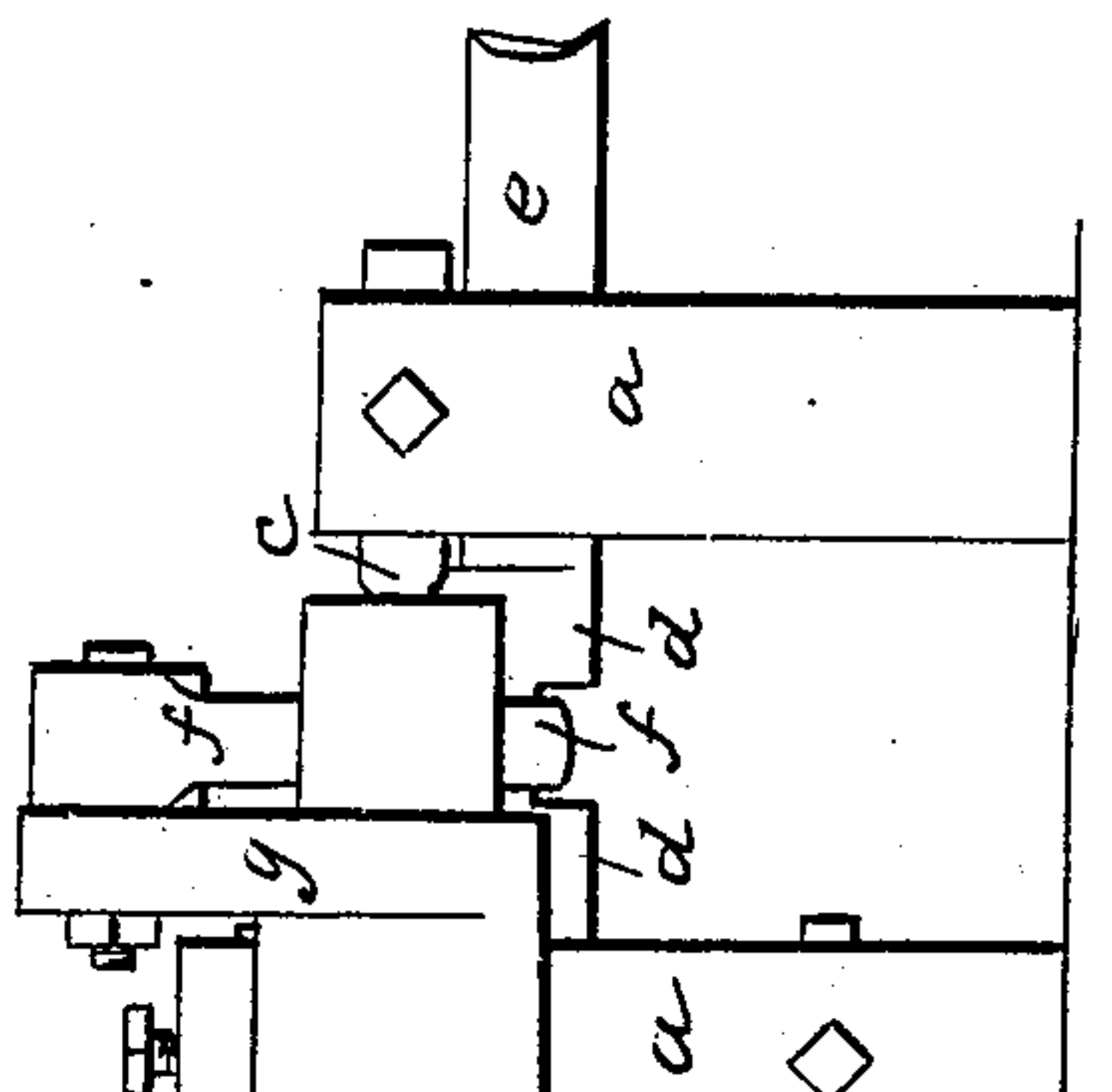


Fig. 2



Witnesses.
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UNITED STATES PATENT OFFICE.

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MACHINE FOR FORGING NAILS.

Specification of Letters Patent No. 17,941, dated August 4, 1857.

To all whom it may concern:

Be it known that I, SAML. J. SEELY, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Forging, Specially Intended for Forging Nails, but Applicable to Forging other 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 plan of the machine; Fig. 2 a side elevation; Fig. 3 a vertical section taken at the line A, *a* of Fig. 1; and Fig. 4 is another vertical section taken at the line B, *b* of Fig. 1.

The same letters indicate like parts in all the figures.

In my said invention there are two anvil faces and two hammers, one hammer for each anvil face; and the two anvil faces are formed on or connected together and with a vibrating or rocking shaft, and at such an angle that by the rocking motion first one anvil face is brought under one face of the article that is being forged, and as this anvil face recedes the other anvil face is brought up against another face of the article that is being forged, and these anvil faces are so combined with the two hammers that one of them strikes the article that is being forged on the face opposite to the one which for the time being is supported by one of the anvils, and as this hammer recedes the other hammer acts on the said article against the other anvil. In this way the forging is effected between hammer and anvil and by successive blows at right angles without the necessity of turning the article that is being forged, and each blow is struck at the time when the anvil is at rest.

In the accompanying drawings (*a*) represents a suitable frame, and (*b*) a heavy shaft hung upon adjustable centers (*c, c*) held by screws in two heads of the frame, but journals may be substituted for such centers. This shaft receives a rocking or reciprocating rotary motion on its axis from a crank (*d*) on the main shaft (*e*) by a connecting rod (*f*) which takes hold of a wrist pin on an arm (*g*) of the said rock shaft. The end (*h*) of this rock shaft is of an enlarged size depending on the articles

intended to be forged, and a sector is cut out to form two anvil faces (*i, j*) of about one hundred and thirty five degrees with each other, more or less, depending on the extent of the rocking motion; but the angle presented by the planes of these two faces and the range of the rocking motion must be such that the faces of these two anvils will be brought alternately against the article to be hammered,—first against one face and then against another face at right angles with the first.

The rod of iron to be hammered is put into a feeder (*k*), which is a flat plate adapted to slide in suitable ways in one of the heads of the frame; and the outer end is sustained and further guided by a rod (*l*) projecting from the head of the frame, on which rod a projecting ear (*m*) with a hole in it slides, or this feeder may be guided in any other suitable manner.

The rod to be hammered is laid on the surface of the feeder, and against the face of a vertical flange (*n*) and passes through a hole in another flange (*o*) at the end, and is projected beyond this end to the distance required for the production of the article required to be forged. The operator after inserting the rod in the feeder pushes the feeder in to the required extent to bring the end of the rod over the anvils. Thus held the anvil face (*i*), by the rocking motion, is brought against the under face of the rod as represented by full lines in Fig. 3, and then the other anvil face (*j*) is brought against the edge of the rod as represented by red lines in the said Fig. 3. In this way the two anvil faces are in succession brought against the rod to be forged that it may be struck alternately by the two hammers (*p*) and (*q*) but at right angles, and as the anvils receive motion from a crank, they are held against the article that is being forged at the time the crank passes its dead points so that each anvil face is at rest sufficiently long to receive the blow of the hammer.

The hammer (*p*) acts in conjunction with the anvil face (*i*) and is on an arm (*p'*) which projects from a hub (*s*) adapted to turn on a rock shaft (*t*) mounted on adjustable centers held by screws in two heads of the frame, so that the hammer face may be properly adjusted longitudinally to the anvil face, and this hub (*s*) has a stud (*u*) projecting from it which enters a mortise

of greater size in an arm (*v*) of the rock shaft (*t*) the arm being provided with set screws (*w*, *w*) passing through to act on the stud of the hammer arm hub, so that
 5 by turning the said screws the face of the hammer can be made to strike nearer to or farther from the anvil face (*i*). The rock shaft (*t*) is provided with another arm (*x*) with a slot (*y*) of the form represented into
 10 which plays a crank pin (*z*) of the main shaft to rock the shaft (*t*) and give the striking motion to the hammer, and the other hammer (*q*) acts against the anvil face (*j*) and this hammer is mounted in
 15 the same manner as the hammer (*p*) but on another rock shaft (*a'*) which receives motion from the self same crank pin, the said crank pin being long enough to pass through the slots of both arms. The alter-
 20 nation of the strokes of the two hammers, derived from the same crank pin is due to the relative position of the two rock shafts.

It will be obvious that the anvil faces and the stock and shaft may be made of one
 25 mass of metal with steel faces welded thereon, or that they may be made of chilled cast iron; but I prefer to make the face separate and fitted in dove-tail or other recesses as in the well known mode of fitting dies,
 30 and this is the more important as the anvil and hammer faces in most cases should be properly shaped, in the manner of swages, as in the drawing, where they are represented as adapted to the forging of horse
 35 shoe nails.

After the nail has been formed by the foregoing operation the operator draws back the feeder with the rod until it is stopped by a gage pin (*b'*) see Fig. 4, and this
 40 brings the rod in the proper position for cutting off the nail with the head. The cutting off is effected by a movable cutter (*c'*)

acting against a stationary cutter (*d'*) which is over the rod and under which the feeder slides with the rod. The movable cutter is
 45 below the feeder and turns on a stud pin (*e'*) projecting from one of the heads of the frame. To the under side of this cutter there is hinged a plate (*f'*) with a spring, the tension of which keeps it in line
 50 with the cutter when the cutter is not to be operated; but when the operator draws back the feeder with the rod he pushes a sliding rod (*g'*) that passes through the head of the frame, and acts on the hinged plate to
 55 force it out so that it will be struck by a spur (*h'*) on the end of the anvil shaft which lifts the cutter to a sufficient height to cut off the completed nail.

I do not wish to be understood as limiting
 60 myself to the use of the kind of feeder and cutters above described, as equivalent devices and arrangements may be substituted. Nor do I wish to be understood as limiting my claim of invention to the described special construction of the anvils and hammers, nor to the described arrangement of the mechanism for imparting the motions, as the same results may be obtained by my invention by the substitution of equivalents.
 65 70

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

The employment of two anvil faces placed at an angle with each other and having a rocking motion to bring them alternately in
 75 contact with the article to be forged, substantially as described, in combination with the hammers, substantially as and for the purpose described.

SAML. J. SEELY.

Witnesses:

WM. H. BISHOP,
 JOEL B. WILSON.