

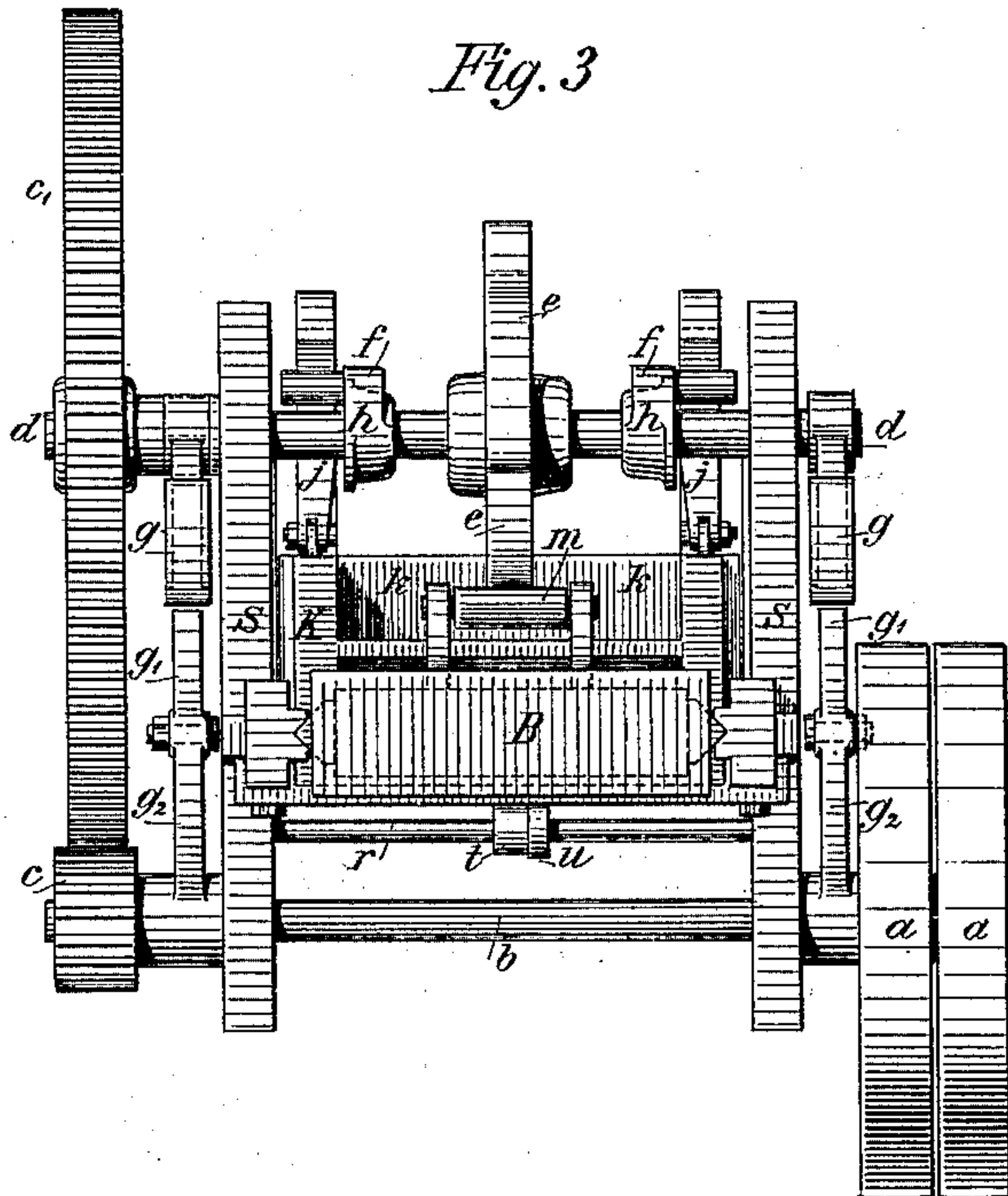
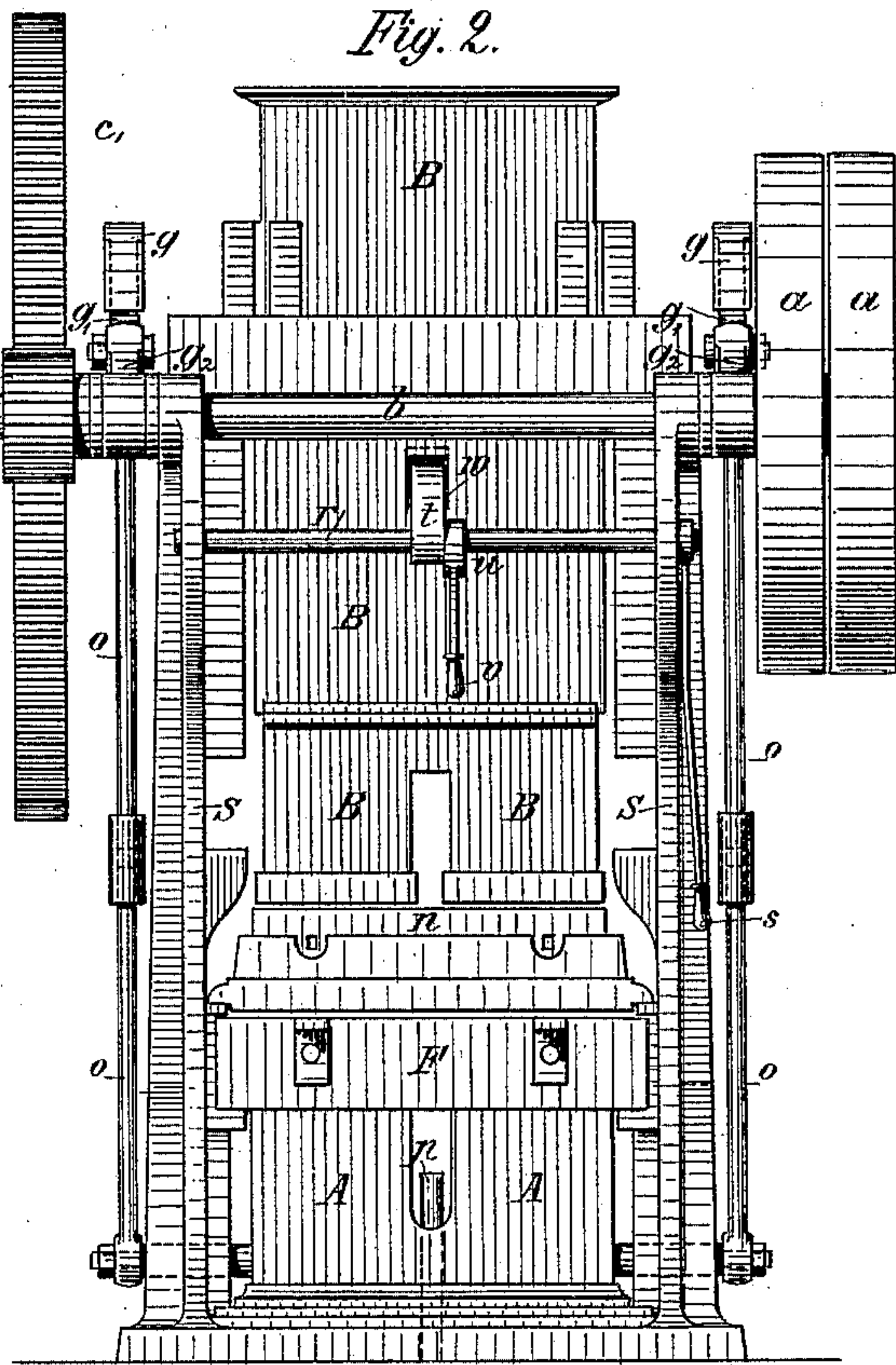
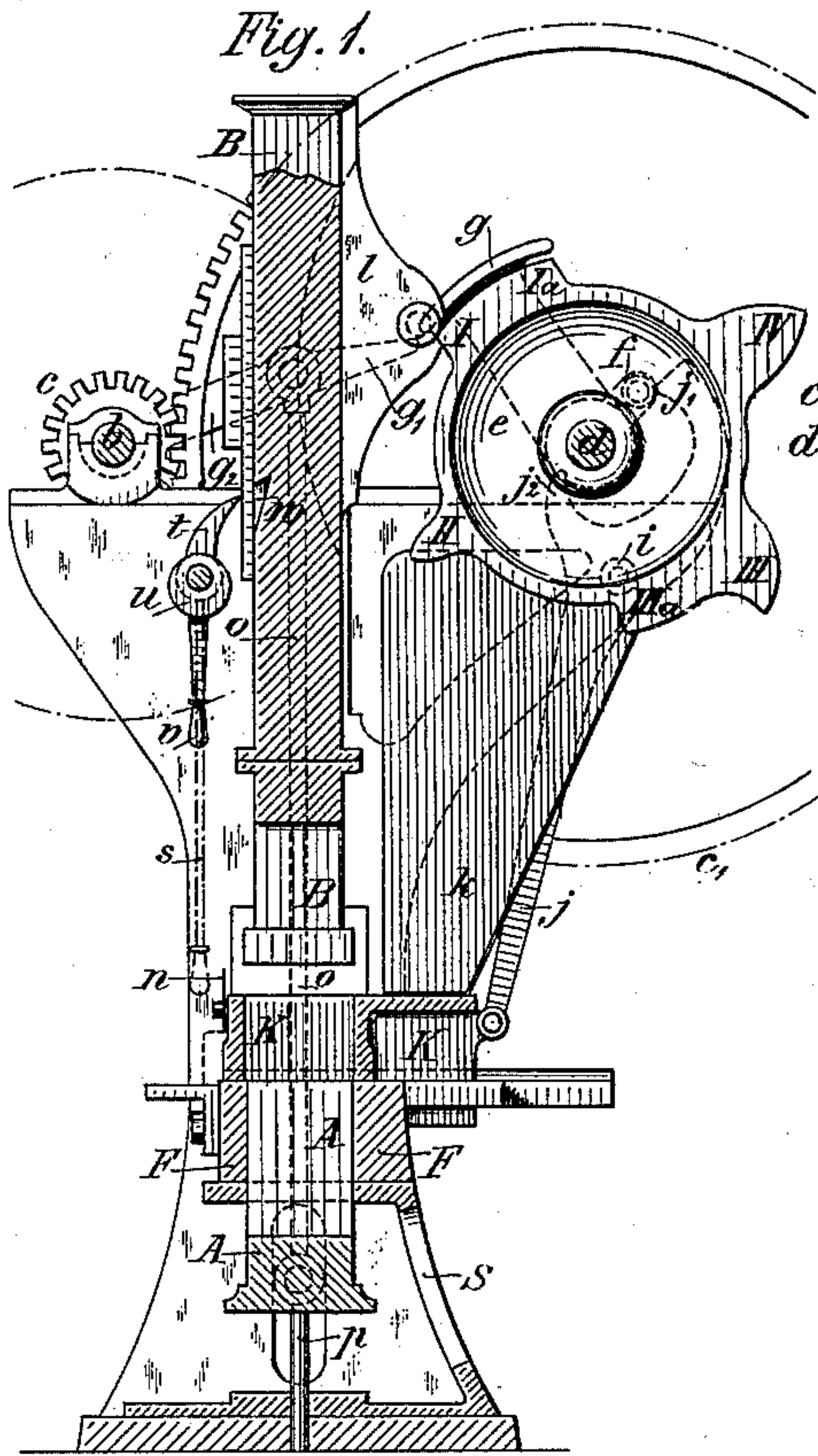
(No Model.)

J. WINKLER.

STAMPING MACHINE FOR MOLDING ARTIFICIAL STONE.

No. 409,542.

Patented Aug. 20, 1889.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH WINKLER, OF KIESENBAACH, NEAR WALDSHUT, GERMANY.

STAMPING-MACHINE FOR MOLDING ARTIFICIAL STONE.

SPECIFICATION forming part of Letters Patent No. 409,542, dated August 20, 1889.

Application filed July 24, 1888. Serial No. 280,951. (No model.) Patented in Germany July 1, 1887, No. 42,780; in England September 28, 1887, No. 13,133, and in France October 10, 1887, No. 173,413.

To all whom it may concern:

Be it known that I, JOSEPH WINKLER, a subject of the Grand Duke of Baden, residing in Kiesenbach, near Waldshut, in the Grand Duchy of Baden, Germany, have invented certain new and useful Improvements in Stamping or Beating Machines for Molding Artificial Stones and the Like, (for which I have obtained patents as follows: in Germany, No. 42,780, dated July 1, 1887; in France, No. 173,413, dated October 10, 1887, and in England, No. 13,133, dated September 28, 1887,) of which the following is a specification.

My invention relates to a machine for the rapid manufacture of firm well-formed bricks, tiles, briquettes, and other similar articles from cement, slag, coal-dust, and other appropriate materials, and for automatically effecting the requisite operations, such as feeding the material to be operated on into the form-box, compressing said material in the form-box, lifting out and removing the finished bricks, tiles, &c.

Figure 1 is a vertical section of the machine on the line *x x* in Fig. 3. Fig. 2 is an elevation, and Fig. 3 a top view or plan of my improved machine.

a are the strap-drums arranged on the driving shaft *b*, and consisting of a fast and loose drum, or the two halves of the shaft can be connected by a claw-coupling.

The pinion *c* is keyed to the driving-shaft *b*, and is in gear with the tooth-wheel *c'* on the shaft *d*, to which a disk *e*, with suitable tappets, is fixed, as described later on in this specification. The rollers *f f* and the preferably T-formed lever-arms *g g* are also carried by the shaft *d*, said rollers *f f* extending horizontally from the disks *h* and serving for operating the two-armed levers *j j*, which have their fulcrums at *i i* and which serve to give the charging-box *K* a horizontal reciprocating movement beneath the drop-hammer *B*.

The charging-box *K* feeds the material placed by hand in the hopper *k* of the same into the form *F* and above the anvil *A*.

The anvil *A* constitutes the bottom of the form, and can be raised and lowered by means

of a device described later on, while the said walls of the form *F* are fixtures.

Immediately above and fitting snugly into the said form *F* is the drop-hammer *B*, which has its guides in the massive standards *G*, and which is provided at the rear with two lugs *l l*, for carrying the massive roller *m*, with which the tappets of the tappet-disk *e* come in contact, so as to raise the said drop-hammer *B* in its guides. The drop-hammer *B* gives, preferably, four blows for each operation, the commencement of the operation being represented in Fig. 1, after the charging-box *K* has fed a fresh quantity of material into the form. The drop-hammer *B* strikes the first blow as soon as the tip of the tappet *I* has passed the roller *m*. During the further rotation of the disk *e* the tappet *II* comes into contact with the roller *m* of the hammer *B*, raises the same and causes, as before described, the second blow. A further rotation of the said disk *e* brings the part *III^a* in gear with the roller *m* and raises the hammer *B*, which remains in this position until the tappet *III* has passed the roller *m*. At the same time, when the hammer is held up by the concentric part *III^a* of the tappet *III* the roller *f* comes in contact with the claws *j²* and presses the same to the left, so that the charging-box *k* beneath the hammer *B* is moved to the rear. The flexible scraper *n* will now scrape off any material adhering to the striking-surface of the hammer *B* into the hopper *k*, and the tappet *III* now allows the hammer to fall for the third blow, whereupon the said hammer is again raised by the tappet *IV* and falls to give the fourth blow when the said tappet *IV* has passed the roller *m* of the hammer *B*.

The time used in giving the third and fourth blows is utilized for repelling the charging-box *K*.

The bricks or other objects, which are completed as soon as the fourth blow has been struck, are lifted out of the form, for which purpose the anvil *A* can be moved upward by means of two connecting-rods, one on each side of the anvil, said upward movement being effected by the arms *g g*. The connect-

ing-rod *o* is connected to a lever *g'*, which can be mounted on the shaft *b*, the free end of the said lever *g'* being raised by coming in contact with the edge 1 of the arm *g*. During the further rotation of the disk *e* the anvil *A* remains in its raised position and has pushed the finished brick or other object out of the form. The roller *f* presses simultaneously against the claw *j'* of the lever *j* and pushes the refilled charging-box *K* again under the hammer, thereby pressing the finished brick or other object from the anvil, which recedes to its original position, so that the material in the charging-box *K* falls into the form. The arrangement of the parts is such that the lever-arm *g* will release the lever *g'* before the tappet *I* releases the hammer *B*, in order that the anvil *A* can receive the blow of the same. The anvil is guided by means of one or more mandrels *p*, running in suitable borings in the anvil. The afore-described series of movements are now repeated. The machine as represented in the accompanying drawings is intended for simultaneously making two bricks; but it will be evident that the same can be arranged to make only one or a larger number of bricks, tiles, or other objects.

In order to be able to retain the hammer *B* in raised position, a shaft *r*, which can be rotated by means of the lever *s*, is employed. A pawl *t* is eccentrically mounted on the shaft *r* by means of the eccentric *u*, which can also be operated direct by means of the handle *v*, so as to bring the hammer *B* out of contact with the tappets of the disk *e*.

The pawl *t* gears into a recess *w* of the hammer *B* when the same is to be put out of action. The tappets on the disk *e* are of various heights, so that the successive blows on the mass or material in the form are of increasing force.

Fig. 1 represents the anvil *A* in raised position immediately before the first blow of the

hammer *B* is given. In Fig. 2 the levers *g'* *g*² have been already released from the arms *g*, and the anvil also released, and the hammer is about to give the first blow.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A machine for manufacturing bricks, tiles, briquettes, and other objects, consisting substantially of the drop-hammer *B*, which is raised by the tappets *I* *II* *III* *IV*, of a disk *e*, the anvil *A*, which is raised by means of the connecting-rods *o*, levers *g'* *g*², and arms *g*, the charging-box *K*, which feeds the material into the form, pushes the formed articles out of the machine, and is operated by the lever *j* with its claws *j'* *j*², and has its fulcrum at *i*, which said lever *j* preferably receives its movement from the roller *f*, arranged crank-like on the shaft *d*, substantially as set forth.

2. In a machine for manufacturing bricks, tiles, and the like, the combination, with the charging-box, the hammer, and means for retaining the hammer temporarily in the raised position, of a series of tappets of gradually increasing size, whereby the blows of the drop-hammer are successively increased, substantially as and for the purposes set forth.

3. In a machine for manufacturing bricks, tiles, and the like, the arrangement of a pawl *t* on an eccentric *u* on the shaft *r*, which said pawl can be operated by the handle *v* or handle-lever *s* for retaining the drop-hammer *B* in its highest position, substantially as set forth and shown on the drawings.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOSEPH WINKLER.

Witnesses:

ALBR. LIEBELT,
JOHANN TEPY.