

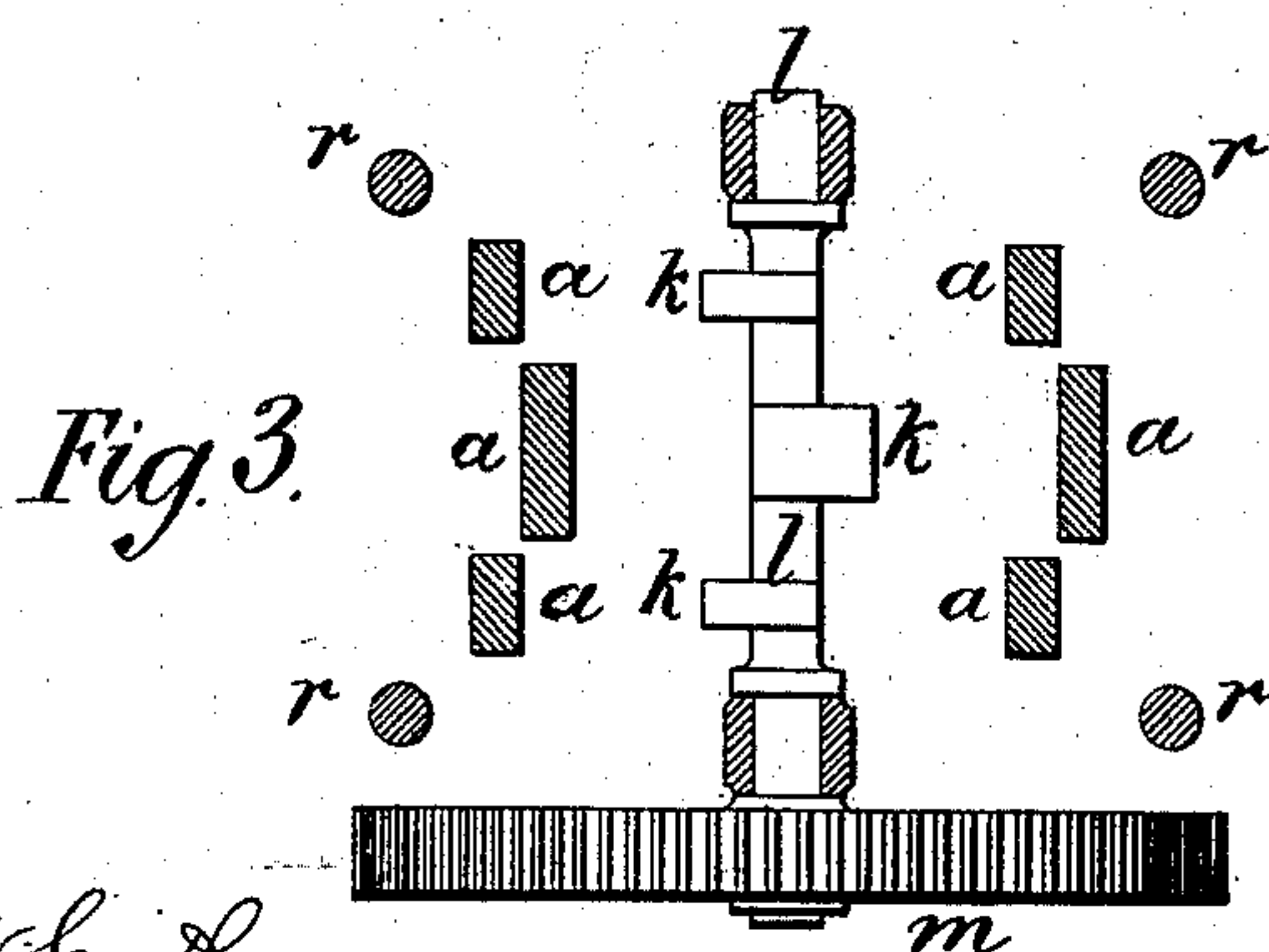
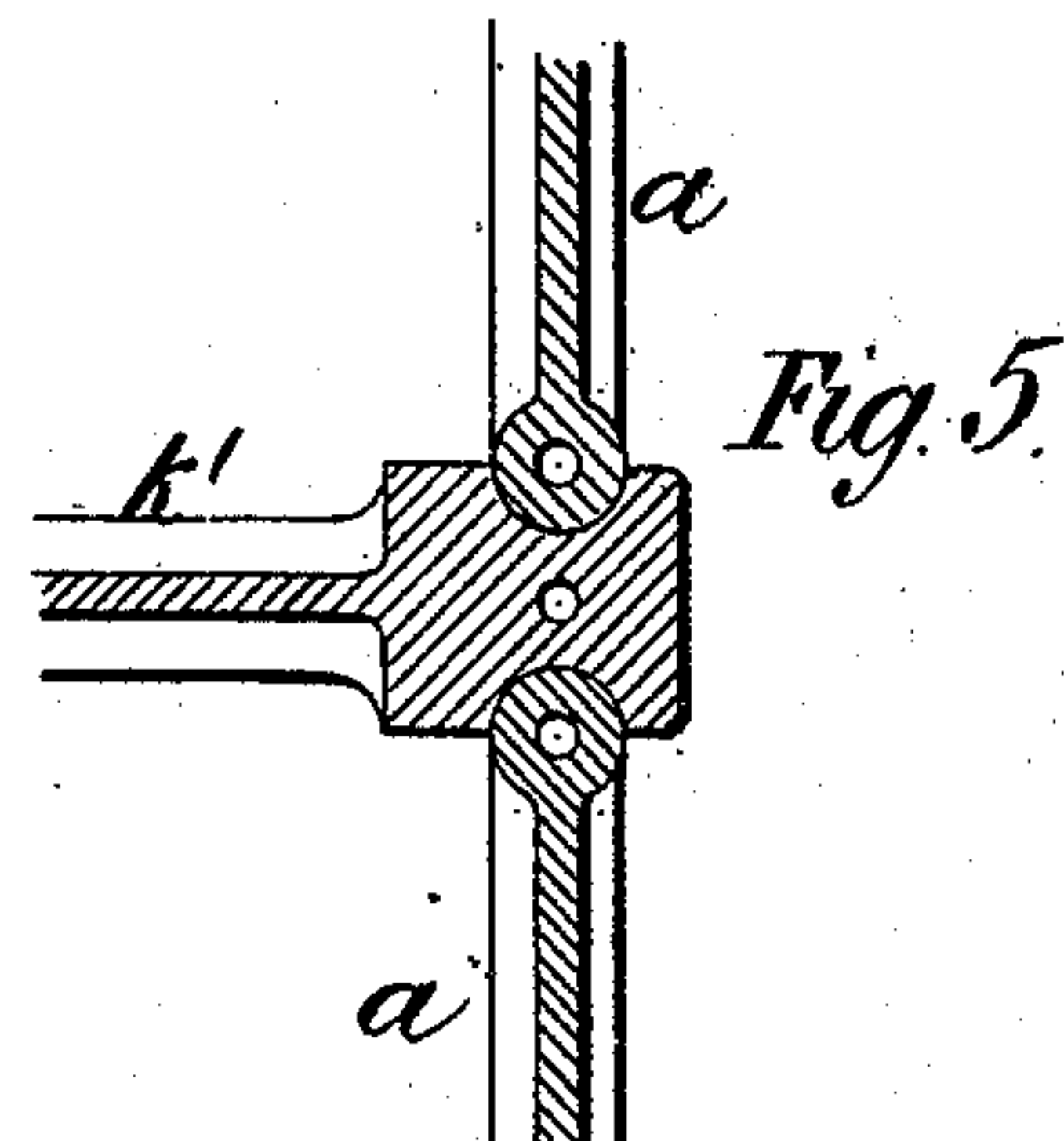
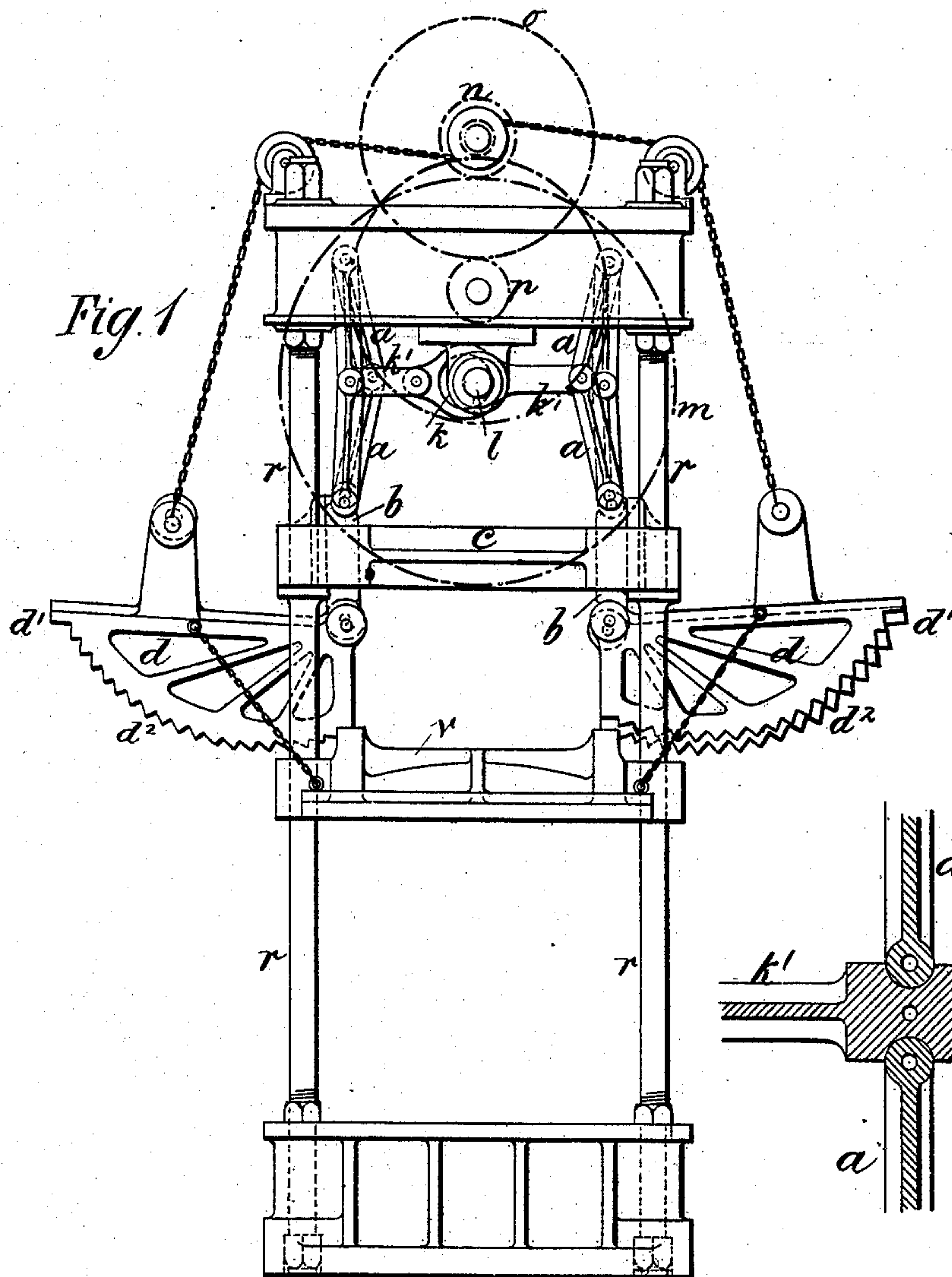
(Model.)

2 Sheets—Sheet 1.

M. STONEHOUSE.
Press.

No. 237,212.

Patented Feb. 1, 1881.



Witnesses

Chas. H. Smith
Geo. C. Prichney

Inventor

M. Stonehouse
per Lemuel W. Perrell
att'y.

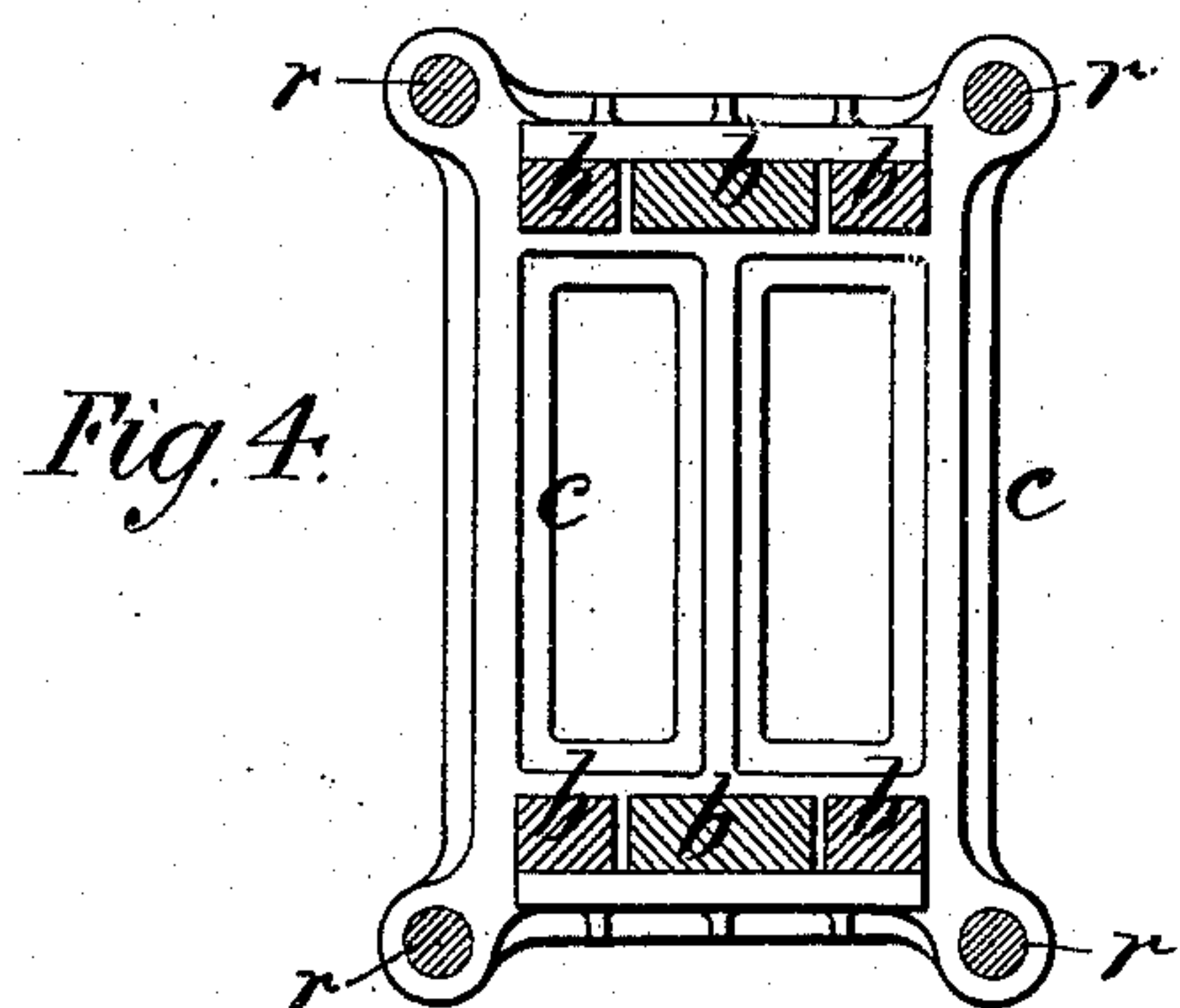
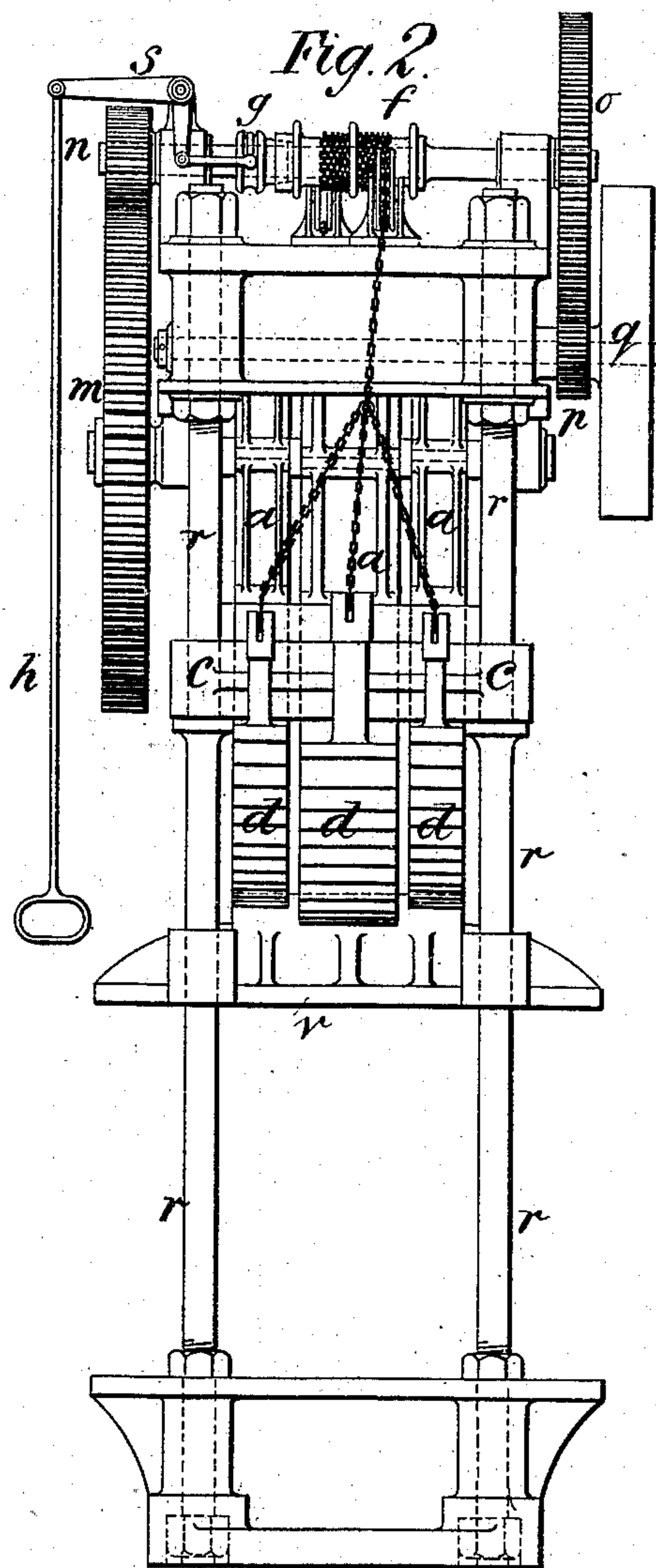
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UNITED STATES PATENT OFFICE.

MARSHALL STONEHOUSE, OF SOUTH STOCKTON-ON-TEES, COUNTY OF YORK, ENGLAND.

PRESS.

SPECIFICATION forming part of Letters Patent No. 237,212, dated February 1, 1881.

Application filed July 12, 1880. (Model.) Patented in England May 28, 1880.

To all whom it may concern:

Be it known that I, MARSHALL STONEHOUSE, of South Stockton-on-Tees, in the county of York, England, have invented new and useful Improvements in Presses and in Knuckle-Joint Action therefor, (for which I have obtained a provisional patent in England, No. 1,723, dated May 28, 1880,) of which the following is a specification.

In most cases where toggle-arm presses are used certain disadvantages occur in their working, and much time and labor are lost in consequence, as in all cases the bulk of material to be operated on must be such as to suit the requirements of the press, instead of the press accommodating itself to the requirements of the material.

My invention consists of two or more pairs of arms jointed at one end to each other directly or by an intermediate piece, and jointed at the other ends to a stationary head and sliding head or follower, or heads and followers; or sliding heads, respectively, are caused to reciprocate by eccentrics, cams, or other convenient means, whereby the followers, sliding heads, or sliding blocks to which the arms are attached receive a short movement in the opposite direction. In combination herewith I use what I call "wings," or notched or stepped filling-up pieces, which are connected to the before-mentioned sliding blocks, and by dropping into their places on suitable projections on the platen impart either a progressive or an intermittent motion to the said platen in the direction of the material to be compressed, according to the number of arms used.

Figure 1 of the accompanying drawings is a front elevation of a press constructed according to my invention; Fig. 2, an end view elevation; Fig. 3, a sectional plan at the center of the arms *a*; Fig. 4, a sectional plan through the sliding blocks *b*; and Fig. 5, a sectional view, showing the joint of an eccentric-rod, *k'*, with the arms *a*.

This press is intended to maintain its full pressure throughout the stroke. The construction is as follows: *a a* are three pairs of arms on each side of the press, which are caused to oscillate alternately by means of eccentrics *k* on a center shaft, *l*, which shaft is driven by

any suitable arrangement of gearing as may be found desirable, such as tooth-wheels *m*, *n*, *o*, and *p*, and strap-pulley *q*. Each pair of the arms *a* are connected to sliding blocks *b*, which slide in a guide-frame, *c*. These sliding blocks are again connected to what I call "wings" or "filling-up pieces" *d*, which, in the downward motion imparted to them by the arms *a a*, give to the platen *v* its compressing action.

v is a platen or follower sliding on the column *r*, with suitable projections corresponding with the steps or notches of the wings *d*.

f is a barrel running loose on one of the quick-motion shafts, and *g* is a friction-clutch working on a feather on the same shaft. When pulling down the handle *h*, acting on a bell-crank lever, *s*, the barrel *f* is caused to revolve, thus winding up the chains attached to the wings *d*, and thereby elevating the platen *v* connected with said wings. When it is required to go to work and the material to be compressed is filled in, the handle *h* is pushed up, whereby the barrel *f* is set at liberty, the platen *v* descends quickly onto the material, and the three wings *d* on each side of the press, which are caused to work alternately by the eccentrics *k* and eccentric-rods *k'*, give a progressive travel to the platen until the last notch, *d'*, is reached in the wings, when, although the press may be left to run, no breakage can take place on account of the said last notch or step *d'* being of much greater height than the others, and the eccentrics *k* only giving a certain limited travel corresponding to the height of the steps *d'*.

By this invention I am enabled to obtain, throughout the whole stroke or travel of the platen, uniform and even action, and the greatest power that can be obtained by forcing the arms, which are slightly out of a straight line, into line, and giving at each alternate stroke sufficient travel to the end connected to the followers or sliding blocks to allow the stepped wing-pieces to progress downward step by step, so that in their alternate action one set of the said wing-pieces will be holding and pressing the platen, while the other set will be being raised at its inner end one notch more, and while it is being pressed the other set is being raised at its inner end one notch,

and by repeating this operation the step-by-step motion causes the outer ends of the wings to travel downward, carrying the platen any desired distance and compressing the article
5 under pressure to the desired point, and I am enabled to work the parts rapidly until reaching the material to be pressed, and after being relieved to also work them rapidly back to a normal position.

10 Having thus described and ascertained the nature of this invention, and modes of carrying the same into effect, I declare that I claim—

1. The reciprocating toggle-arms *a*, in combination with the stepped wing-pieces *d*, the
15 sliding blocks *b*, or equivalent means, and the stepped follower or platen *v*, substantially as described.

2. The winding-barrel *f*, in combination with

the stepped wing-pieces *d* and the stepped follower *v* and connecting-chains, for the purpose of giving the follower an ascent and a quick descent before the heavy pressing action commences, substantially as described and shown.

3. The reciprocating toggle-arms *a a'*, rods *k'*, and cams *k*, in combination with the blocks *b*, stepped wing-pieces *d*, and platen *v*, the parts operating by a step-by-step and alternate motion, substantially as shown and described.

MARSHALL STONEHOUSE.

Witnesses:

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