

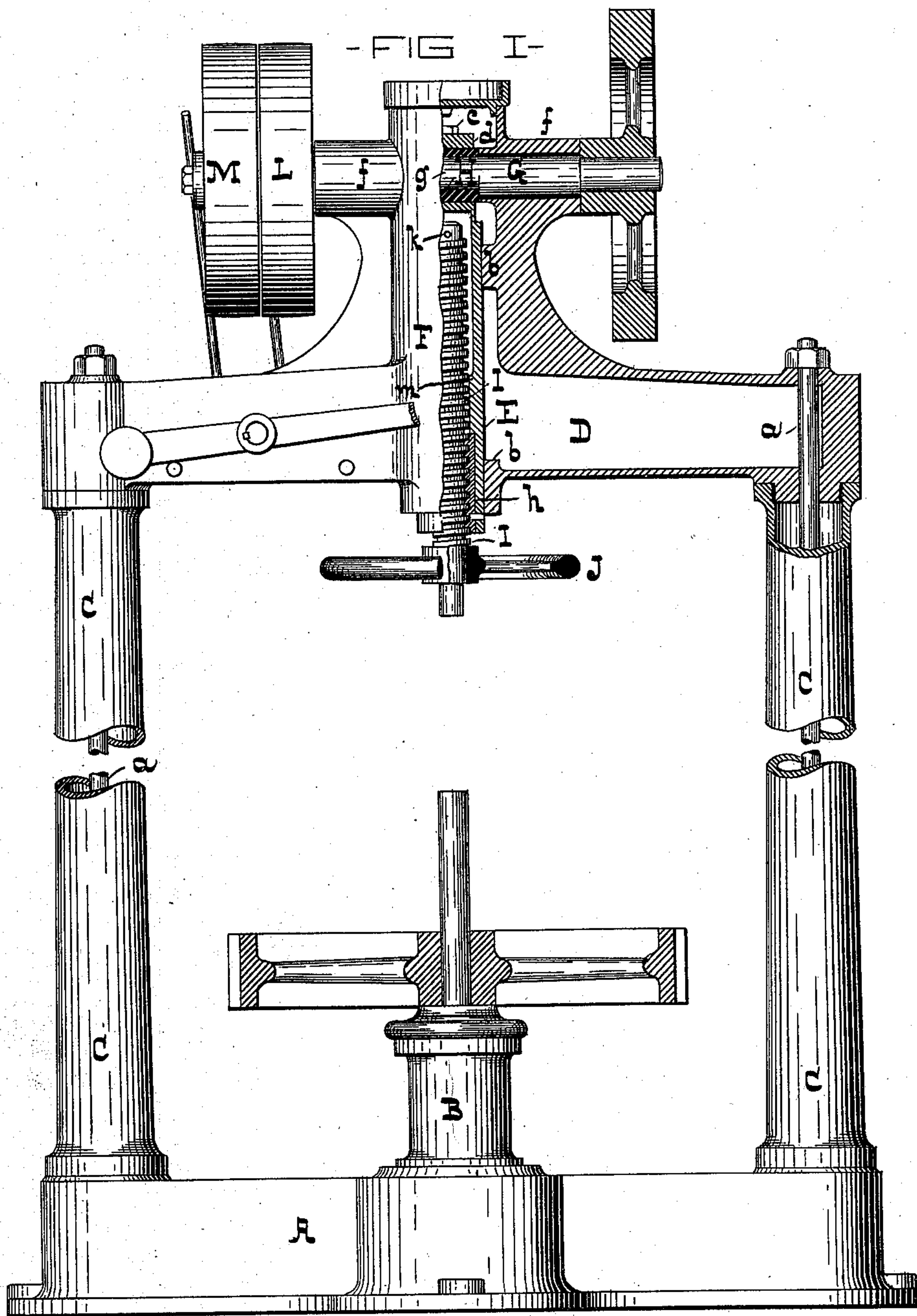
(No Model.)

2 Sheets—Sheet 1.

J. RICHARDS & J. WALKER.
MACHINE FOR DRIVING MANDRELS, KEYS, &c.

No. 401,968.

Patented Apr. 23, 1889.



- WITNESSES -

David Fisher
Joe Sparklin

- INVENTORS -

John Richards,
John Walker,
by G. H. Howard,
attys.

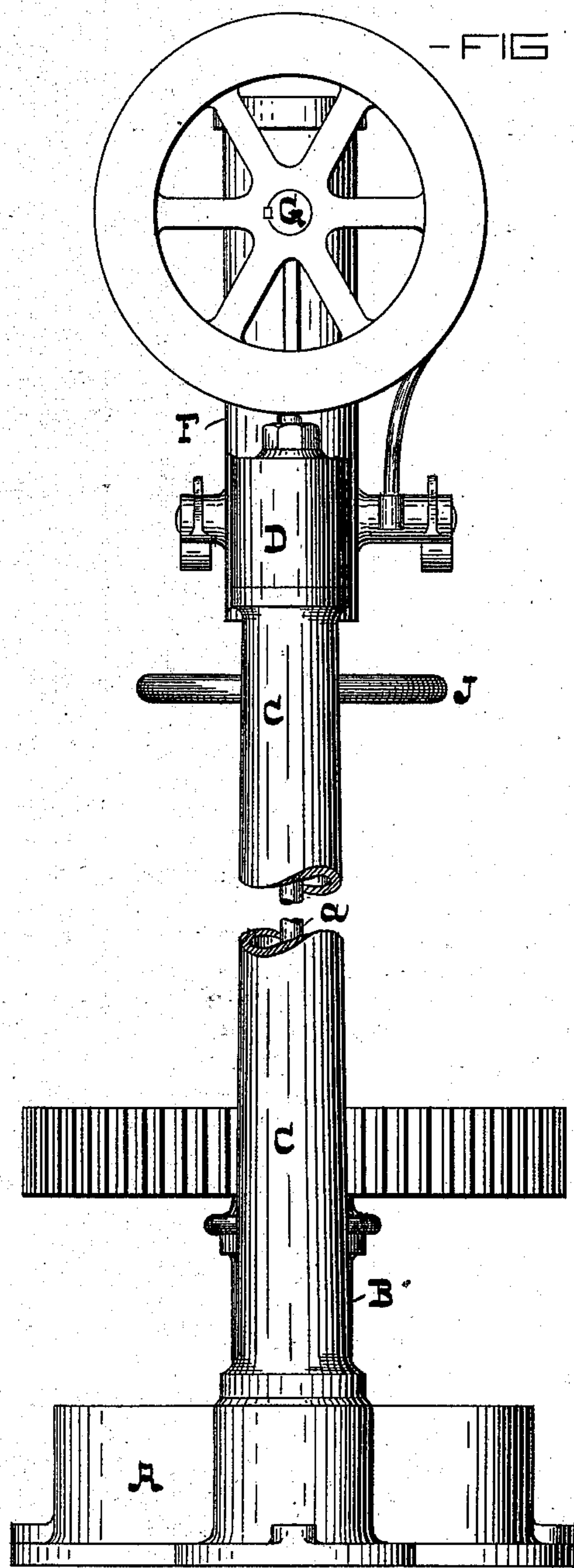
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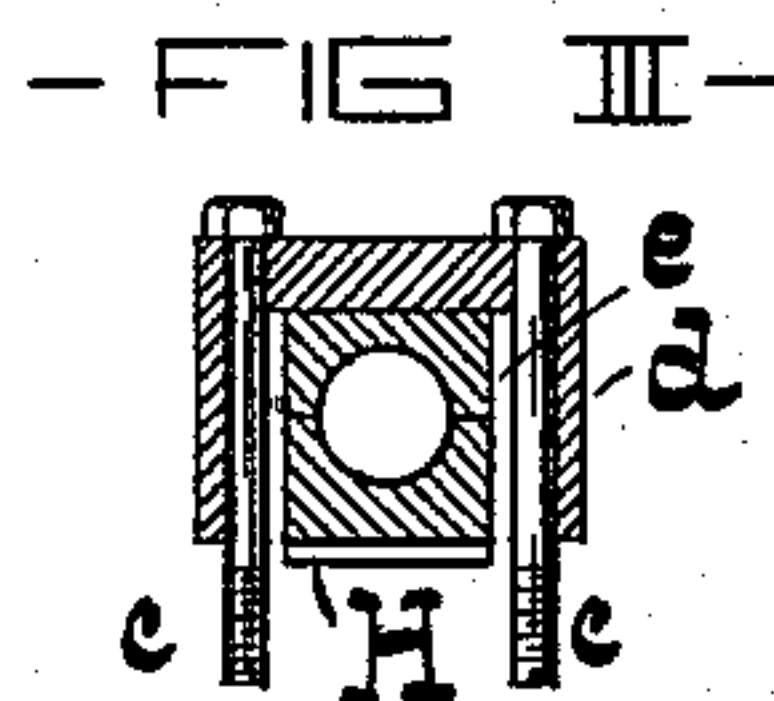
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- FIG II -



- FIG III -



- FIG IV -

- WITNESSES -

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UNITED STATES PATENT OFFICE.

JOHN RICHARDS, OF SAN FRANCISCO, CALIFORNIA, AND JOHN WALKER,
OF CLEVELAND, OHIO.

MACHINE FOR DRIVING MANDRELS, KEYS, &c.

SPECIFICATION forming part of Letters Patent No. 401,968, dated April 23, 1889.

Application filed June 19, 1888. Serial No. 277,571. (No model.)

To all whom it may concern:

Be it known that we, JOHN RICHARDS, of San Francisco, in the county of San Francisco and State of California, and JOHN WALKER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain Improvements in a Machine for Driving Mandrels, Keys, &c., of which the following is a specification.

10 This invention relates to certain improvements in a machine whereby mandrels, keys, and a variety of other similar devices may be driven or forced through the hubs of wheels and pulleys, and in fact through any piece of
15 machinery in the manipulation of which such devices are employed, by a succession of rapid blows delivered on the upper end of the mandrel or key.

20 The said invention consists in a ram adapted to have a short rapid vertical reciprocating movement through the medium of a rotative eccentric connected thereto, the said ram having a head which is fed down independently of the reciprocating movement of the ram
25 proper through the medium of a screw which connects it to the said ram and is turned by means of a hand-wheel. The ram mechanism is placed directly over an anvil-block which is supported by the bed-plate of the machine
30 and on which the pulley or wheel to be operated upon is laid.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part
35 hereof, and in which—

Figure I is a partly sectional front elevation of the improved machine, and Fig. II an end view of the same. Fig. III is a sectional view of a part of the machine, and Fig. IV an
40 exterior view of another portion of the same.

Similar letters of reference indicate similar parts in all the views.

In the said drawings, A is the bed-plate of the machine, on which is erected and secured
45 the anvil-block B.

C C are columns extending from the bed-plate A to the girder D, secured in place by means of the bolts a.

E is the ram, consisting of a hollow cylinder adapted to have a vertical reciprocating

movement within a sleeve, F, formed as a part of the said girder. The inner diameter of the sleeve F is considerably greater than the outer diameter of the ram E, and from the interior face of the sleeve are projected the
55 bearings b, which guide the said ram in its reciprocating motion.

On the upper end of the ram is fastened by means of bolts c a hollow cap, d, through the opening e of which extends in a horizontal
60 direction the driving-shaft G. This shaft is supported in bearings f in the sides of the sleeve F, and the portion within the cap d is turned slightly smaller than the remaining portion and eccentric with it. A box, H, in
65 two parts, serves to communicate motion from the eccentric to the ram in the operation of the machine. The eccentric is denoted in the drawings by g.

The driving-shaft is provided with a tight
70 and a loose pulley, L and M, and also with a balance or fly wheel to cause a regular movement of the machine. The top of the sleeve is removable to give access to the eccentric and its box.

I is a threaded bar screwed into a nut, h, held securely in the lower end of the ram, and the lower end of this bar constitutes the ram-head which strikes the mandrel or key to be
80 driven. The threaded bar I is turned to lower the ram-head by means of a hand-wheel, J. A pin, k, in the bar I serves to limit the motion of the same in a downward direction by striking an offset, m, in the ram.

In Fig. I a gear-wheel with a turning-mandrel in its hub is shown as resting on the anvil-block. In order to suit mandrels of different sizes, we provide each machine with a set of reducers, all of which have their lower end of the same diameter as the hole in the anvil-block. One of these reducers is shown in
85 Fig. IV.

Supposing a wheel or pulley provided with a mandrel to be seated on the anvil-block, as shown in Fig. I, and the machine to be in motion, the driving operation consists simply in feeding down the ram-head toward the mandrel as the same recedes under the rapid strokes to which it is subjected by means of the hand-wheel.
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We claim as our invention—

1. In a machine for driving mandrels, &c., a reciprocating ram having a head which is rigidly connected thereto by means of a threaded bar, and a hand-wheel to turn the said bar, substantially as and for the purpose specified.
2. In a machine for driving mandrels, &c., a reciprocating ram having a head rigidly connected thereto by means of a threaded bar, and means whereby the said bar may be turned to feed down the said head independently of the reciprocating motion of the said ram, substantially as and for the purpose specified.
3. In a machine for driving mandrels, &c., the combination of a sleeve, a ram confined within the said sleeve and adapted to have a reciprocating motion therein, a driving-shaft extending through the said sleeve, which is provided with bearings to support the said shaft, an eccentric formed in the said shaft, and means, substantially as described, to connect the eccentric with the ram, a ram-head united with the ram by means of a screw carrying a hand-wheel, and an anvil-block situated under the said ram-head, substantially as and for the purpose specified.
4. In a machine for driving mandrels, &c., the combination of a frame carrying a sleeve with laterally-placed bearings, a ram adapted

to slide in the said sleeve, a ram-head connected to the ram by means of a threaded bar having means whereby it may be turned in the said ram, a driving-shaft supported in the said lateral bearings on the sleeve extending through the sleeve and provided with an eccentric, a laterally-sliding box to communicate motion from the eccentric to the ram, and means to effect the revolution of the said driving-shaft, substantially as and for the purpose specified.

5. In a machine for driving mandrels, the combination of a ram adapted to have a reciprocating motion within a sleeve, a ram-head connected to the ram by means of a screw carrying a hand-wheel, and an anvil-block fitted with removable reducers situated under the said ram-head, substantially as and for the purpose specified.

JOHN RICHARDS.
JOHN WALKER.

Witnesses to the signature of John Richards:

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Witnesses to the signature of John Walker:

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