

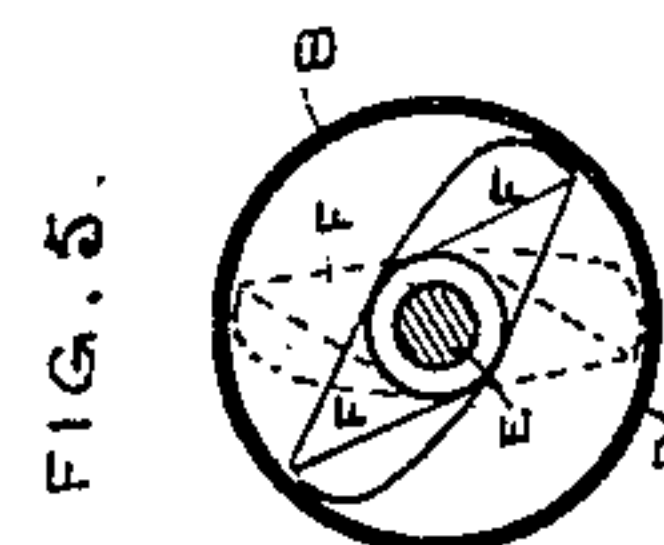
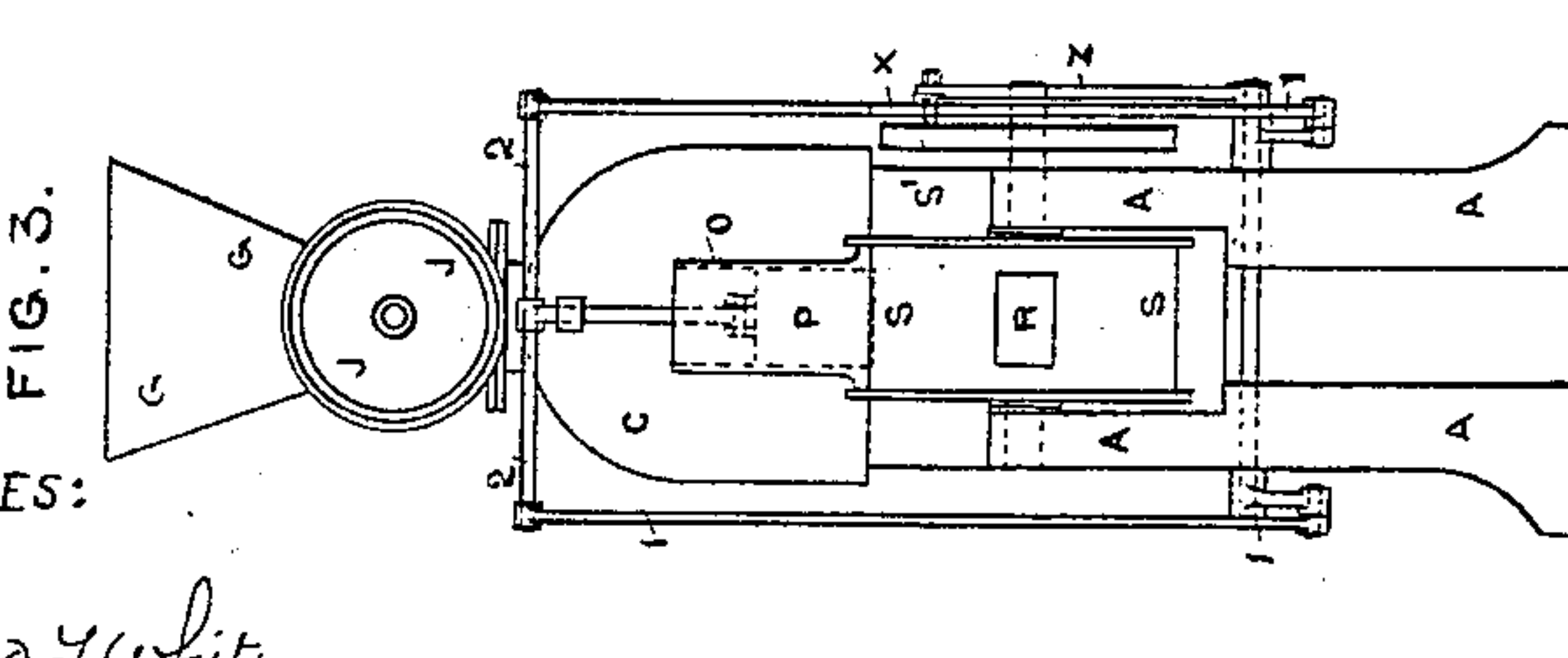
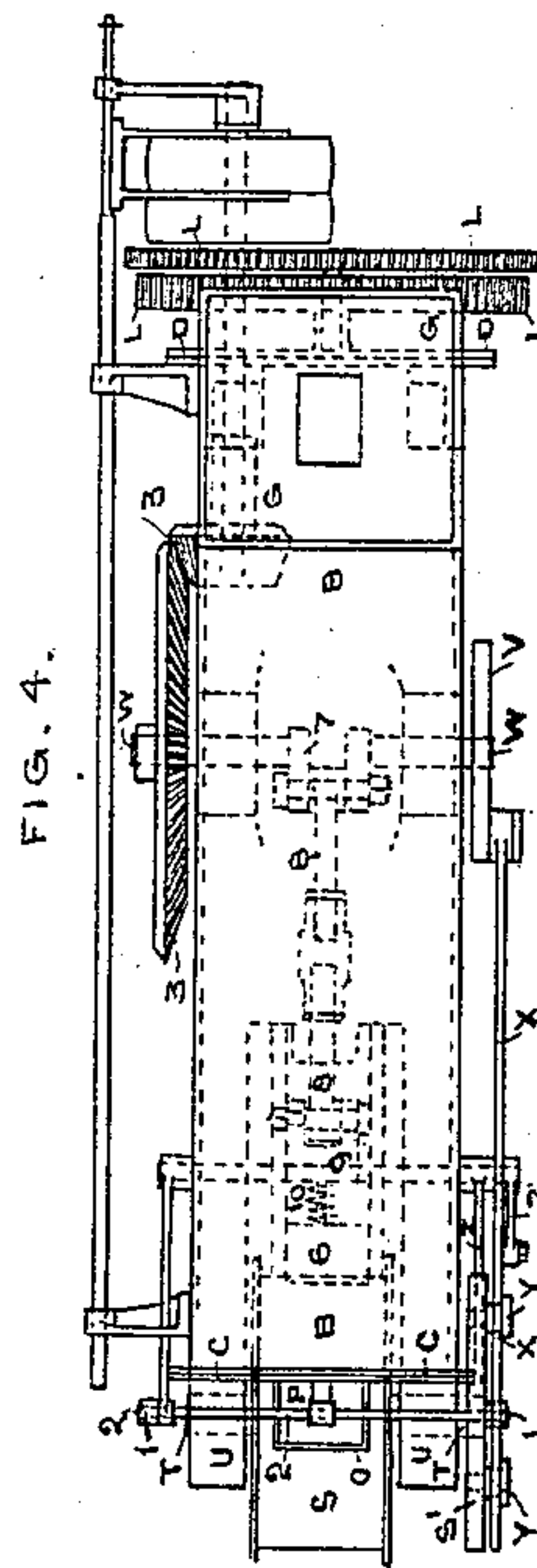
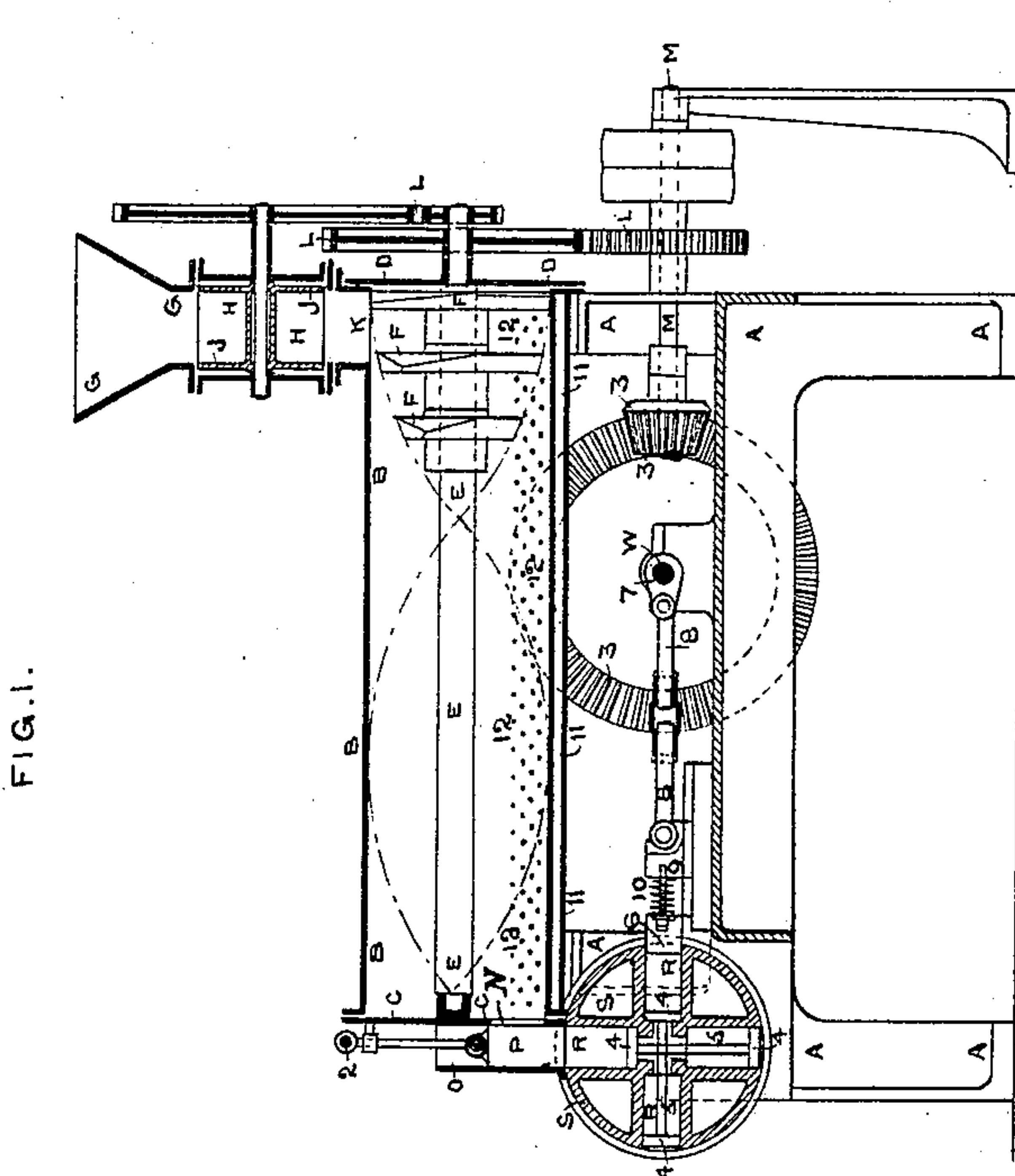
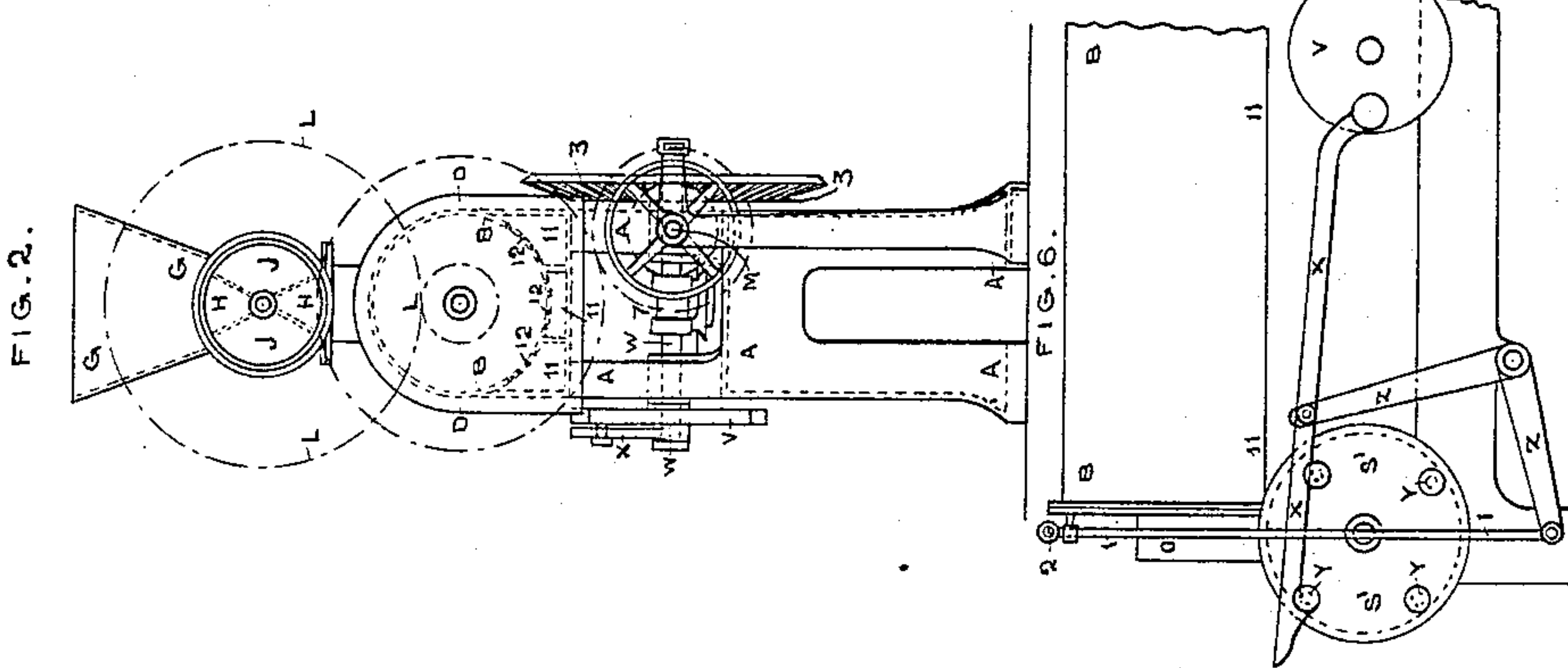
(No Model.)

N. PROCTOR, C. E. FRASER, H. M. CARTER &  
A. MIDDLETON.

MACHINE FOR THE MANUFACTURE OF BRICKS AND BRIQUETS.

No. 449,089.

Patented Mar. 24, 1891.



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# UNITED STATES PATENT OFFICE.

NINIAN PROCTOR, CHARLES EDWARD FRASER, AND HAROLD MARK CARTER,  
OF LEEDS, AND ARTHUR MIDDLETON, OF BEN RHYDDING, ENGLAND.

## MACHINE FOR THE MANUFACTURE OF BRICKS AND BRIQUETS.

SPECIFICATION forming part of Letters Patent No. 449,089, dated March 24, 1891.

Application filed September 16, 1889. Serial No. 324,097. (No model.) Patented in England January 9, 1889, No. 409.

*To all whom it may concern:*

Be it known that we, NINIAN PROCTOR, CHARLES EDWARD FRASER, and HAROLD MARK CARTER, residing at Leeds, and ARTHUR MIDDLETON, residing at Ben Rhydding, all in the county of York, England, subjects of the Queen of Great Britain and Ireland, have invented new and useful Improvements in Machines for the Manufacture of Bricks and Briquets, (for which a patent has been granted us in Great Britain, dated January 9, 1889, No. 409,) of which the following is a full, clear, and exact description.

Our invention has reference more especially to means or apparatus for the manufacture of bricks and briquets, consisting of mixtures or combinations of material to be used for fuel; but it may also be employed for the manufacture of bricks or briquets for other purposes.

Figure 1 is a longitudinal section of machine; Fig. 2, an end elevation of feeding end of machine; Fig. 3, an end elevation of brick or briquet forming end of machine. Fig. 4 is a plan looking on the top; Fig. 5, elevation of mixing and feeding knives or blades, and Fig. 6 part side elevation.

On suitable supports A we mount a cylinder B, having the covers C and D at its ends, and through the cylinder B is provided a shaft E, having its bearings in the cylinder-covers C and D. On the shaft E are fitted and fixed the mixers and feeders F in a spiral direction, as shown at Fig. 1, these being for mixing and feeding forward the material which is passed into the cylinder B. At one end and on the top side of the cylinder B is provided a hopper G, through which the material is fed alternately into the intermediate chambers H, provided in the revolving drum J, and allowed to fall in the cylinder B at K as each chamber H comes round to the lower position shown in drawings. The required motion is transmitted to the drum J, also to the mixers and feeders F, through gearing L from driving-shaft M.

The amount of composition or material deposited into the cylinder B from each chamber H depends upon the size of such chamber H, and such size is dependent upon that of

the brick or briquets, as it is the intention of this machine that the amount of material fed into the cylinder should correspond with the amount of material let out of the cylinder for forming the bricks or briquets. The material, after being dropped in the cylinder at K, is mixed, fed forward, and pushed through opening N in cylinder-cover C into box O, from whence it is forced, by means of the plunger P, alternately into the molds R, provided in the revolving drums S, such drums having trunnions T, whereby it is mounted and carried in bearings U. The required intermittent rotary motion is imparted from the disk or crank V, provided on the cross-shaft W, to the revolving drum S through hooked connecting-rod X and pins or studs Y, provided in the side of the drum-disk S'. The required vertical intermittent reciprocating motion is imparted to the plunger P from the hooked connecting-rod X, through bell-crank lever Z, vertical rods 1, and cross-head 2, such cross-head 2 being attached to the plunger P in the ordinary way. Motion is imparted to the cross-shaft W by gearing 3 from driving-shaft M. In each of the molds R in the drum S is provided a plate 4. The two plates in opposite molds are connected together by a rod or rods 5, so that as the material from the cylinder is being forced into the top mold, as shown in the drawings, motion is transmitted to the plate in the lower mold, which forces the previously-formed brick or briquet out onto a table or other convenient receptacle, and while this is going on a horizontal plunger 6 moves forward and presses the material to the required extent in the then horizontal mold, this movement being effected by the crank 7 on the cross-shaft W through the adjustable connecting-rod 8 and slide-block 9. A spring 10 may be used between the pressing-plunger 6 and the slide-block 9, so as to prevent any undue strain upon the machine.

Under the cylinder B is provided a steam-chest 11, into which steam is admitted by ordinary means and allowed to pass upward through suitable openings or perforations 12 into the cylinder B around and among the material during the operation of mixing and



moving forward of the material. The water or condensed steam falls to the bottom of the steam-chest and can be drawn or let off at any time, when required, through suitable or  
5 ordinary medium.

We claim as our invention—

1. In a brick and briquet machine, the combination, with a drum provided with a plurality of chambers, of a cylinder, and steam-  
10 chest provided with perforations, and driving-shaft M, whereby motion is imparted through suitable gearing to both the cylinder and drum at the same time, substantially as set forth.

15 2. In a brick and briquet machine, the combination of a crank or disk V, hooked connecting-rod X, bell-crank lever Z, vertical rods 1, cross-head 2, plunger P, plunger-box O, and mold-drum S with its molds R, substantially  
20 as described.

3. The combination of supports A, cylinder B, with its end covers C and D, shaft E, feeders or mixers F, hopper G, with its revolving chambered drum J, gearing L, driv-  
25 ing-shaft M, plunger-box O, plunger P, re-

volving drum S, with its molds R, and trunnions T, bearings U, disk or crank V, cross-shaft W, hooked connecting-rod X, disk S', pins or studs Y, bell-crank lever Z, vertical rods 1, cross-head 2, gearing 3, plates 4, rod  
30 or rods 5, plunger 6, crank 7, connecting-rod 8, slide-block 9, spring 10, steam-chest 11, and openings or perforations 12, forming the brick and briquet machine, substantially as described.

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