

(No Model.)

3 Sheets—Sheet 1.

J. LOBET.

MACHINE FOR CUTTING LAMP CHIMNEYS.

No. 477,133.

Patented June 14, 1892.

FIG. I.

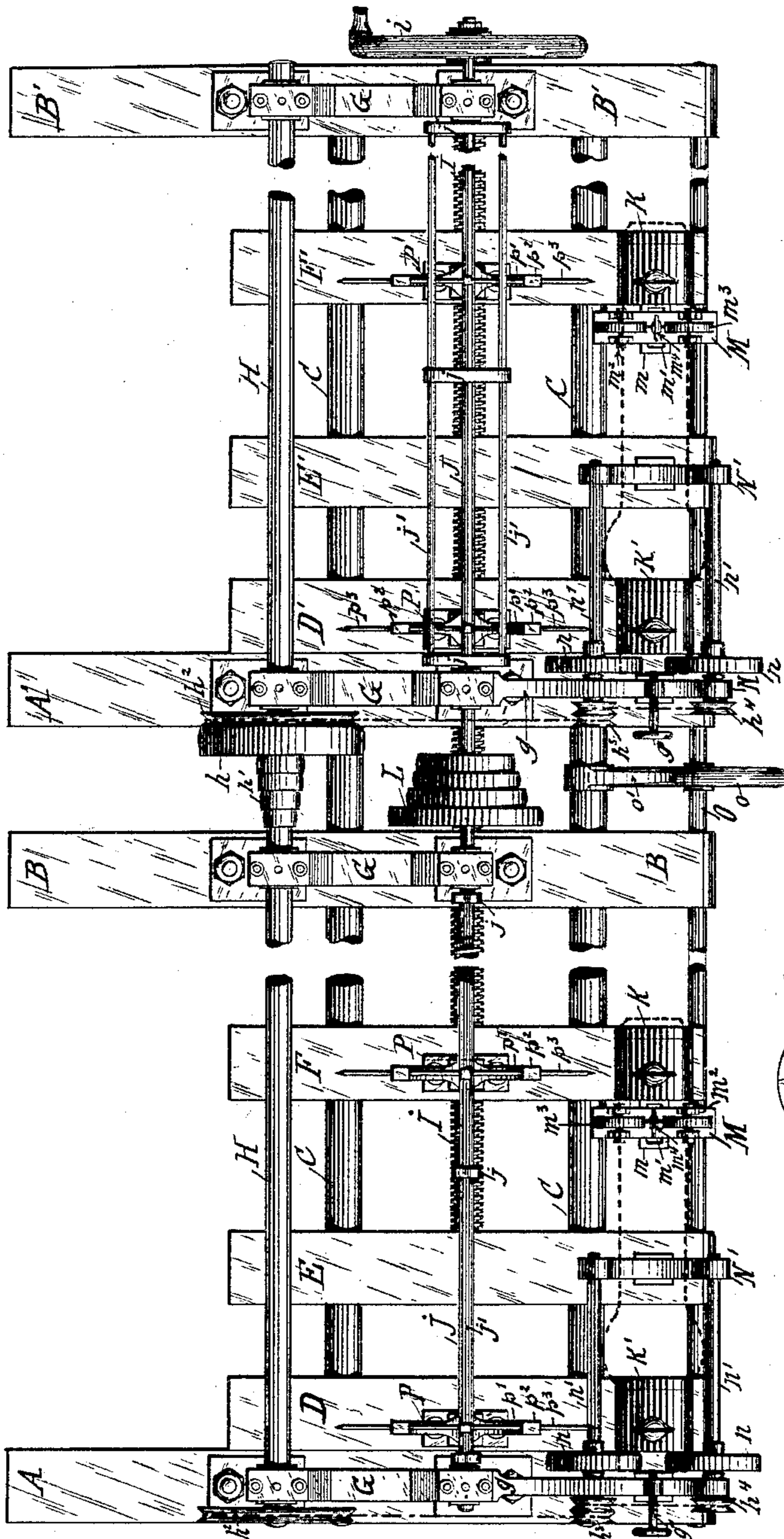


FIG. VII.

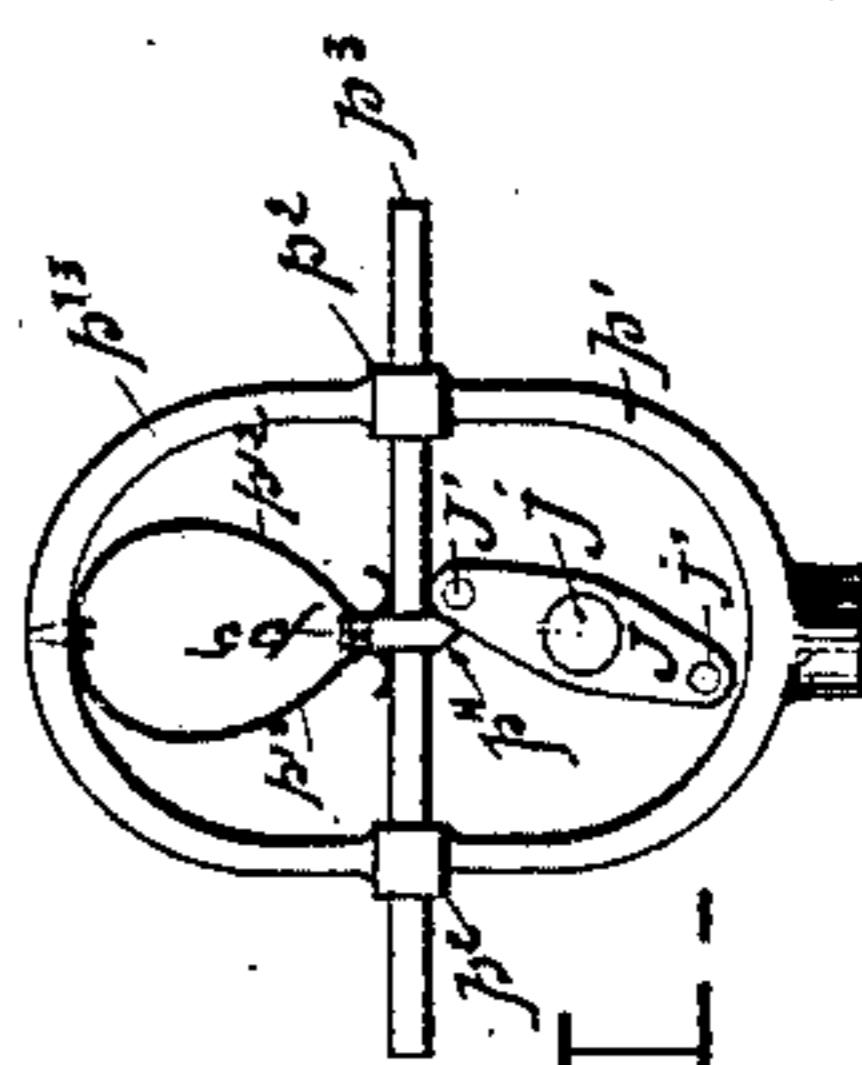


FIG. VI.

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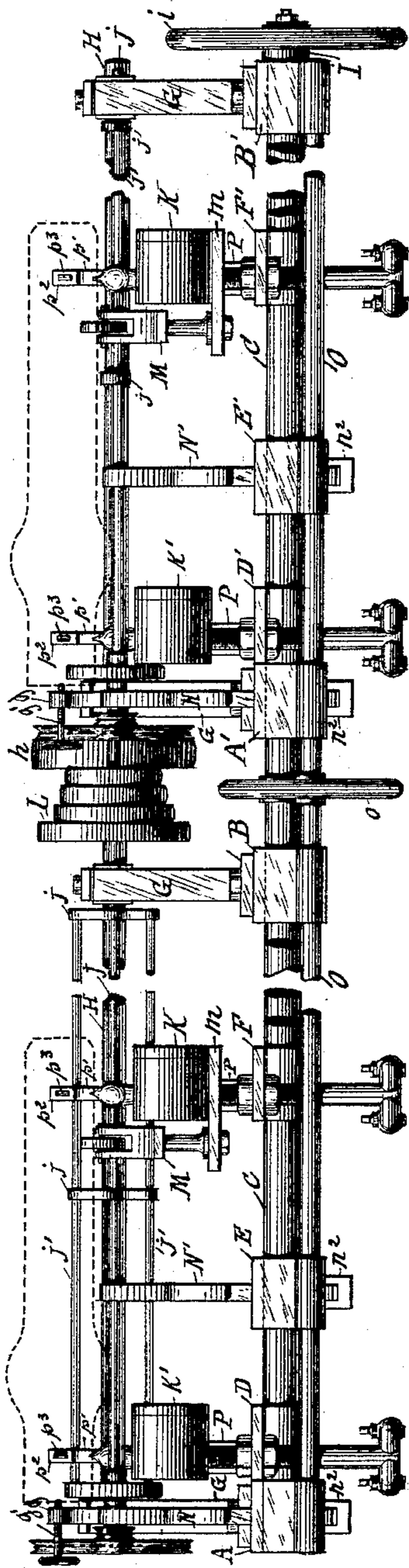
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J. LOBET.

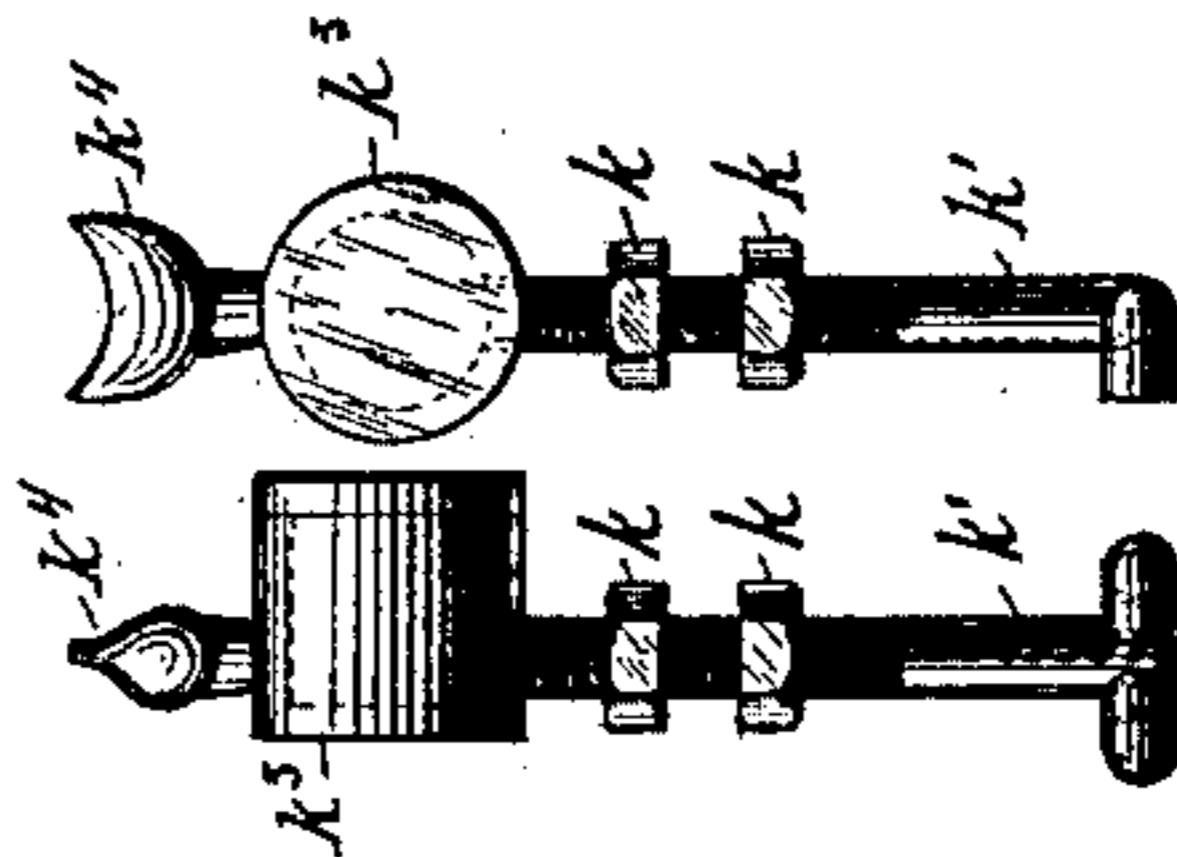
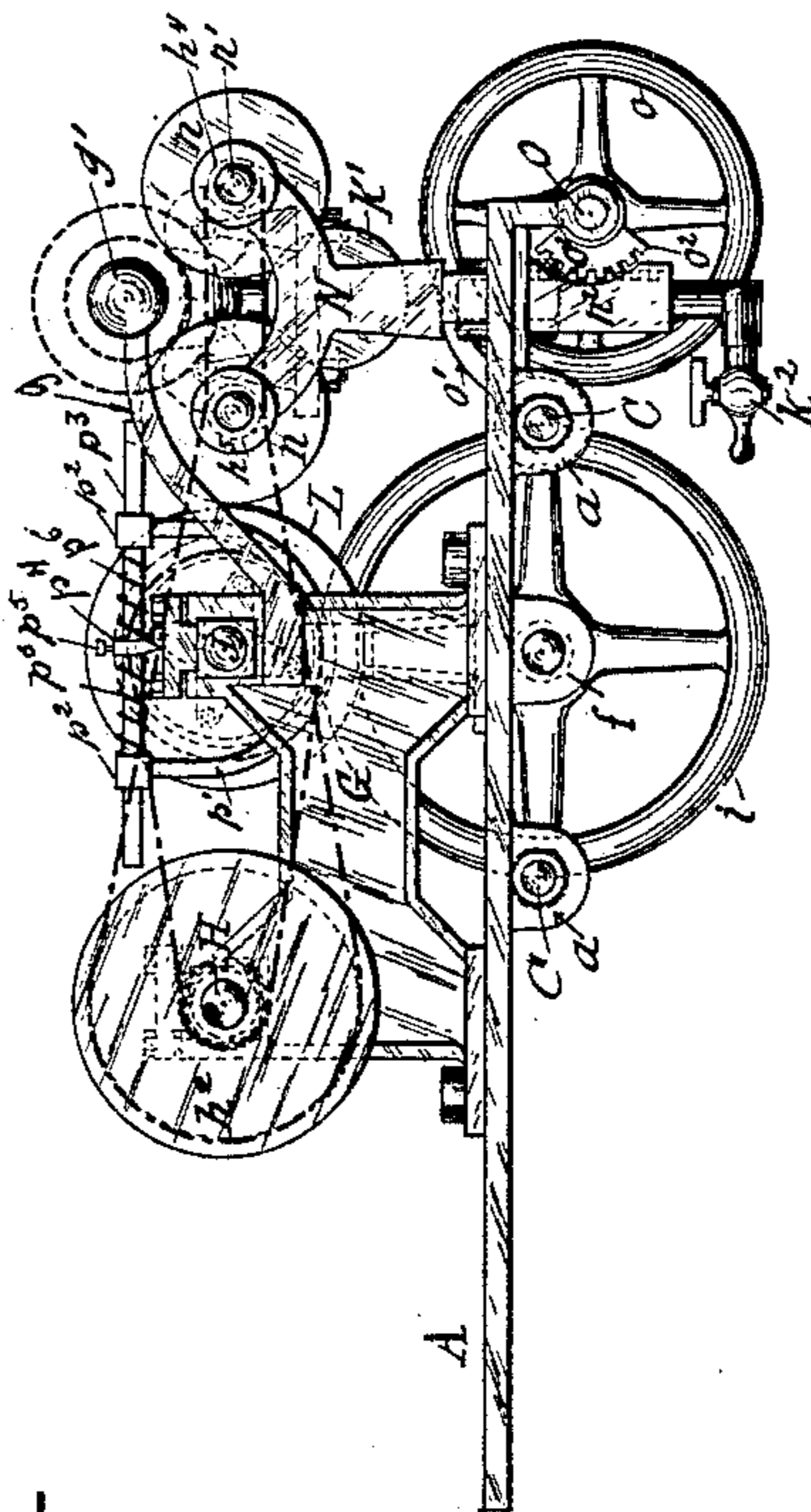
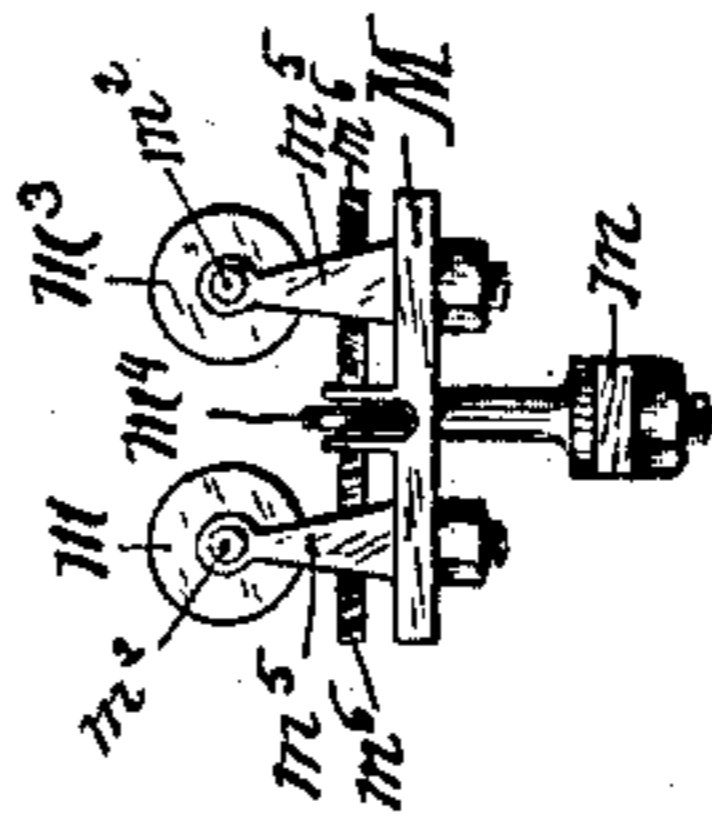
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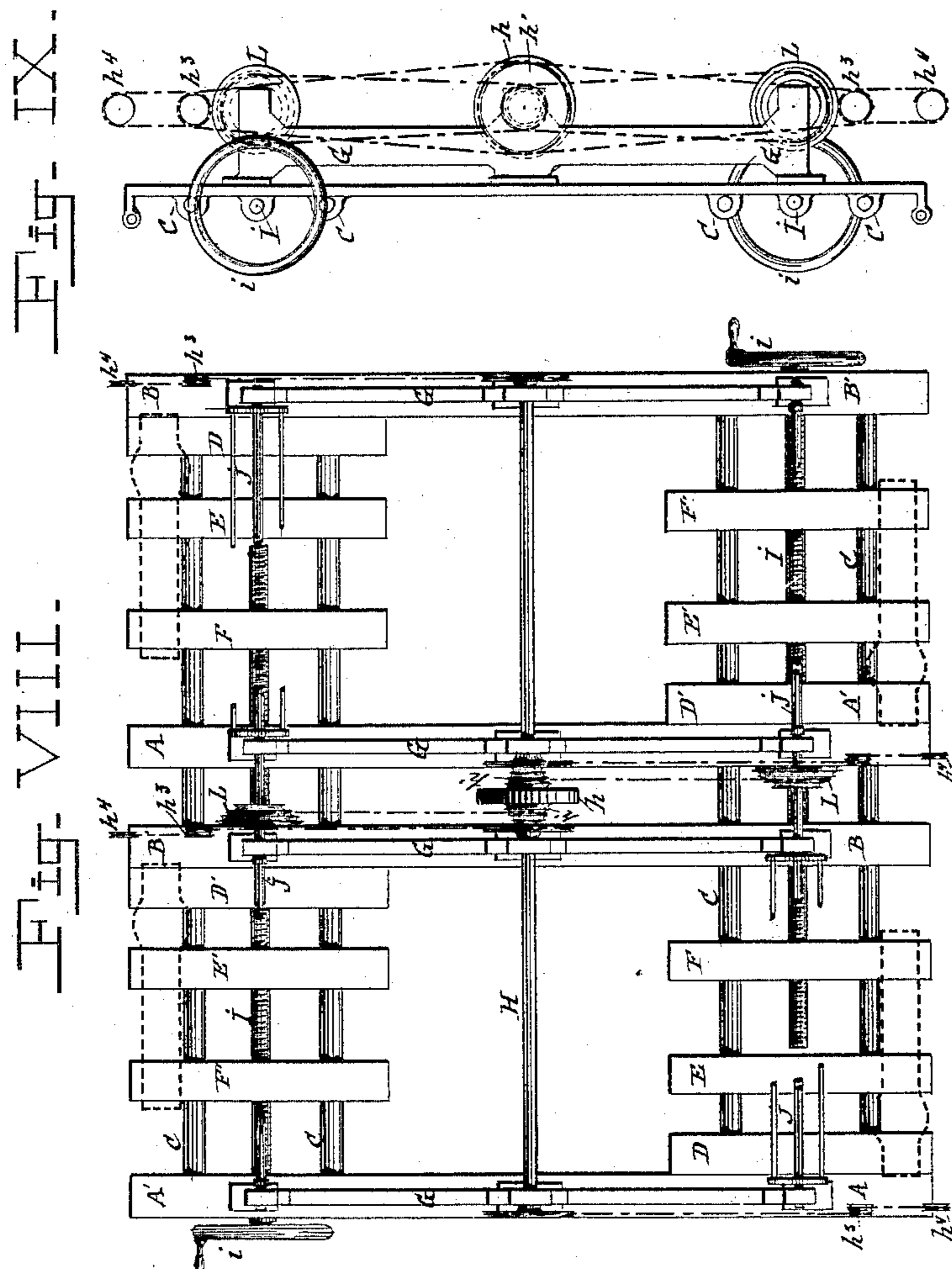
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# UNITED STATES PATENT OFFICE.

JEAN LOBET, OF FLÉMALLE-LIEGE, BELGIUM.

## MACHINE FOR CUTTING LAMP-CHIMNEYS.

SPECIFICATION forming part of Letters Patent No. 477,133, dated June 14, 1892.

Application filed June 26, 1891. Serial No. 397,604. (No model.)

*To all whom it may concern:*

Be it known that I, JEAN LOBET, a citizen of the Kingdom of Belgium, residing at Flémalle-Liege, in Belgium, have invented certain new and useful Improvements in Machines for Cutting Lamp-Chimneys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to machines for cutting lamp-chimneys. The machines hitherto employed for this purpose leave much to be desired as regards rapidity of work and finish.

For cutting a lamp-chimney several operations have been necessary, not only to cut the chimney at its two ends in order to obtain the desired length, but also to grind the cut chimney at its ends by means of suitable apparatus in order that they may be level. With my improved apparatus all these difficulties are obviated, for it cuts the chimneys quickly and the cuts made are so smooth and level that no subsequent operations are needed for grinding and equalizing the divided portions.

In order that my invention may be more clearly understood, I have described the same in detail with reference to the accompanying drawings.

Figure 1 shows a general view of the machine in plan. Fig. 2 is a longitudinal elevation of Fig. 1. Fig. 3 is an end elevation of the machine. In these three figures the lamp-chimneys are indicated by thick dotted lines in order to avoid complicating the drawings. Fig. 4 illustrates in side and end view one of the blow-pipes which I use for heating the parts of the chimneys to be cut. Fig. 5 shows in detail the part of the apparatus which supports one of the ends of the chimney. Fig. 6 represents an arrangement for moving the cutters or cutting-points longitudinally other than that shown in Figs. 1, 2, and 3. Fig. 7 represents the arrangement of the support for adjusting the cutters, the left-hand figure being a section through the axis of the figure on the right-hand side. Figs. 8 and 9 show an ar-

range ment for cutting four chimneys at the same time.

In all the figures similar letters designate corresponding parts.

The frame-work of the machine is made of four iron plates A B and A' B', firmly connected with each other by two rods C, which pass through lugs *a*, provided on the under sides of the said plates, Fig. 3. Upon each of these plates are secured the brackets G, which support the shafts H and J.

Between the iron plates A and B on one hand and the plates A' and B' on the other hand are provided the intermediate plates D E F and D' E' F'. The plates D E and D' E' are only moved in exceptional cases and certain bulges of the chimneys.

All the plates are provided with lugs, through which the shafts C pass; but the plates F and F' are further provided with a screw-threaded lug *f*, Fig. 3, traversed by the screw I, so as to enable these plates to be moved in one or the other direction in the axis of the machine, according to the length of the chimneys to be cut. This screw, which also extends through a lug which has no screw-thread and which is provided on the under side of the plate B', is actuated by the hand-wheel *i*.

Each of the plates F F' supports a blow-pipe K, the use of which is for heating the parts of the chimney to be operated upon by cutting devices. The heating of the chimney should occur just before applying the cutters to the chimneys, as this prevents them from cracking and also gives the glass a much smoother surface after the cutting operation than could be produced by cutting the glass in its cold state. Thus it may be termed "fire-polishing." These blow-pipes can be displaced in the vertical direction by means of two nuts *k*, placed upon their admission-pipe *k'*, Fig. 4. These pipes are divided into two parts by a small partition, (shown in dotted lines,) one part serving for the passage of gas and the other for the passage of air.

The lower part of the pipe *k'* is divided into two branches provided with two cocks *k*<sup>2</sup>, to which is attached an india-rubber pipe, Fig. 3, serving for feeding the blow-pipe. The gas

and air must not meet until they arrive in the cylindrical case  $k^3$ , whence they pass through the nozzle  $k^4$ , which must not have an orifice of more than half a millimeter in width by four centimeters in length.

Upon each blow-pipe K, Figs. 1, 2, and 5, and below the cylindrical case  $k^3$ , is fixed a small iron plate  $m$ , provided with a groove or slot  $m'$ , Fig. 1, for enabling the bracket M to be at will caused to move toward or away from the blow-pipe, the said bracket, which is also provided with a groove or slot, permitting two other small brackets  $m^5$  to recede from or approach each other through the medium of the spindle  $m^6$ , having a left-handed thread on one of its halves and a right-handed thread on the other half. This spindle  $m^6$  is actuated by the milled wheel  $m^4$ , placed at its middle part. The two small brackets  $m^5$  carry axes  $m^2$ , turning upon fine points and designed to support small rollers  $m^3$ , which must turn very freely, and the object of which is to support one of the extremities of the chimney to be cut. These small rollers  $m^3$  are surrounded with india-rubber rings.

The whole bracket above described, which is placed upon the plate  $m$ , enables large and small chimneys to be optionally placed at the desired distance from the nozzle of the blow-pipe.

Upon the plates D D' are placed blow-pipes K', which do not differ from those arranged upon the plates F and F', excepting that they are not provided with plates  $m$  and their brackets M. Upon the plates D F and D' F' are likewise provided brackets P, rounded off at their upper portion for enabling the parts  $p'$ , which fit with their base upon the upper tenon  $p^7$  of the bracket P, to be inclined to the right or left hand side, so as to always obtain the exact direction of the cutter or cutting-point  $p^3$ . The cutters or cutting-points  $p^3$  are supported laterally in guides  $p^2$  of the part  $p'$ . A small sliding piece  $p^4$  is fixed by means of a screw  $p^5$  upon the cutter  $p^3$ , Fig. 3. The screw  $p^5$  serves to fix the sliding piece  $p^4$  at precisely the same point as the cutter, in order to have the exact length of the part of this cutter which is necessary for cutting the chimney in accordance with its size. The small sliding pieces  $p^4$ , which impart motion to the cutters, are actuated by eccentrics placed upon the shaft J, one on the right-hand side of the machine and the other on the left-hand side, so that the cutters will be moved intermittently. Each of these eccentrics is provided on the shaft J, upon which are placed three disks  $j$ , which take up the rods  $j'$  and keep them in their place.

The height of a pair of cutters  $p^3$  is adjusted with absolute exactitude by the action of the screw  $p^8$ , placed in the interior of the bracket P, which possesses an opening  $p^9$  for the passage of the milled wheel  $p^{10}$ , by which the screw  $p^8$  is actuated. The small tenons  $p''$  have for their object to maintain the tenon  $p^7$  vertical for the purpose of preventing it

from turning round. The shaft J is operated by the pulley L, which receives its movement in the manner hereinafter described.

Between the small sliding pieces  $p^4$  and the guides  $p^2$  for the cutters  $p^3$  are placed, so as to surround the cutters, small helical springs  $p^6$ , having for their object to move the sliding pieces rapidly to the rear when these, encountered by the rods of the eccentrics, have moved the cutters abruptly to the front for cutting the chimneys at the desired point.

For the proper operation of the apparatus care must be exercised that the point of the cutter, when stationary—that is to say, while the eccentric makes its half-revolution—shall be at a distance of about one centimeter from the chimney to be cut. Accordingly, the operations above described are effected as follows: The shaft J, receiving its movement from the pulley L, actuates the eccentrics and the latter in their turn encounter the small sliding pieces  $p^4$ . The shock caused by one of the rods or transverse pieces  $J'$  of the eccentrics, which are connected with each other by the parts J, striking against the sliding pieces  $p^4$  throws the cutters forward for cutting the chimney, and the helical springs  $p^6$ , as soon as the rods of the eccentrics are passed, move the cutters to the rear again. For equalizing the work the eccentrics are placed so as not to actuate the two cutters on the right-hand side and the two cutters on the left-hand side at the same time.

The rollers  $n$ , which receive their movement in the manner hereinafter described, actuate small shafts  $n'$ , supported at the other extremity by the brackets N'. These rollers  $n$  can be fixed at a given place through the medium of a pressing-screw, so as to adapt them to the chimneys to be cut, and they are designed to impart a rotary movement to the chimneys. They are surrounded by india-rubber rings. To the chimney placed upon these rollers is imparted a more or less rapid rotary movement, according to the velocity given to the apparatus, and it causes the above-named small rollers  $m^3$ , provided upon the brackets, to turn by themselves. The brackets M, which carry the rollers  $m^3$ , being mounted so as to enable the chimney to be inclined in one or the other direction, the chimney can be moved to the front or to the rear and will bear with its lower part against the screw  $g'$ , which also serves for regulating the length of the part to be cut off. These screws  $g'$  are supported by parts  $g$ , which are forked and held in their place through the medium of screws on the brackets  $g$ , arranged upon the plates A A'.

The brackets N and N', carrying the small shafts  $n'$ , have their lower parts provided with teeth, so as to form racks, these parts being guided in small cases  $n^2$ , having openings which leave a portion of the toothed part uncovered. These cases  $n^2$  are fixed below the plates A E and A' E'. The brackets N N' are designed to be displaced in a vertical di-

rection, in accordance with the thickness of the chimneys to be cut, because as the cutters or cutting-points cannot be displaced in the vertical direction relatively to the eccen-

tries they would be too low for the thick chimneys and too high for the thin chimneys. The brackets N and N' are actuated by the shaft O, through the medium of the wheel o, upon which bears a pawl o', placed upon one of the rods C and which serves to maintain the rollers at a suitable height. This shaft O is held in its place by lugs provided on the under side of the plates A E B and A' E' B'. In these lugs are fixed upon the shaft O and opposite the toothed part of the brackets N and N' the two toothed sectors o<sup>2</sup>, Fig. 3. By the action of the wheel o movement is thus imparted to the sectors o<sup>2</sup>, which actuate in their turn the parts forming racks of the brackets N N', which enables the latter to be raised or lowered, according to requirements.

Fig. 6 shows another arrangement for moving the cutters. Instead of employing helical springs p<sup>6</sup>, Fig. 3, for moving the cutters to the rear again after they have been thrown forward by the action of the rod of the eccentric upon the above-named sliding piece, I make use of a flat steel spring p<sup>12</sup>, of the form shown in the drawings, which is held in its position at its upper part by a screw extending through the bow-shaped pieces p<sup>13</sup>, fixed upon the guides p<sup>2</sup>. The lower parts of the spring p<sup>12</sup> surround the sliding piece p<sup>4</sup>, which they accompany when it makes its forward movement and which they move to the rear, together with the cutter or cutting-point p<sup>3</sup>, as soon as the rod j of the eccentric is passed, Fig. 6.

The machine is operated in the following manner: Movement is imparted by any motive power through the medium of the pulley h, placed upon the shaft H. This pulley is made of two parts, one receiving the belt while the other receives a small cord or band for transmitting the movement to the double-grooved pulley h<sup>3</sup>, which in its turn transmits it to the pulley h<sup>4</sup>, these last mentioned two pulleys actuating the small shafts n, which support one of the extremities of the chimney and move the latter round in a rotary movement, which it communicates to small rollers m<sup>3</sup>, that support it at the other extremity. The above-described movement takes place at the right-hand side of the machine. The same movement is effected at the left-hand side, this movement being obtained from the grooved pulley h<sup>2</sup>, placed at the extremity on the driving-shaft H.

I have found from practice that the best results are obtained by driving the shafts n' five revolutions to one of shaft H, although this requirement is not absolute. One of the stepped pulleys h', fixed upon the shaft H, transmits the movement of the latter by a belt to the shaft L, carrying the eccentrics, through the medium of the pulley L. By reason of this arrangement of the pulleys h' and L the shaft J can be driven at different velocities. This device for changing the velocity can be replaced by gear-wheels arranged upon the right-hand extremities of the shafts H and J.

It may be mentioned that with my improved machine at least six thousand chimneys can be cut per day, the output varying, of course, according to the size of the chimneys. Moreover, my apparatus cuts chimneys level and smooth, so as to dispense with the grinding operation.

Figs. 8 and 9 show the arrangement which I use for doubling the output of my machine, which in this case is arranged for cutting four chimneys at the same time. In its details this arrangement is similar to that which serves for cutting two chimneys. In fact, it comprises two apparatuses of the kind above described, which are placed side by side and are both operated by a single transmitting-gear provided in the middle. This arrangement is clearly shown in Figs. 8 and 9, which represent an upper view and a side view of the machine.

It will be understood that I do not limit myself to the special arrangements hereinbefore set forth, as various modifications in the details of my apparatus can be made without departing from the principle of my invention.

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

1. In a machine for cutting lamp-chimneys, the brackets P, secured to the frame of the machine for supporting the cutters p<sup>3</sup>, and eccentrics placed on the shaft J for actuating said cutters, substantially as shown and described.

2. In a machine for cutting lamp-chimneys, the combination of the toothed sectors o<sup>2</sup>, placed upon the shaft O, which is actuated by the wheel o, held in its place by the pawl o', with the lower grooved parts of the brackets N and N' for raising or lowering the latter, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JEAN LOBET.

Witnesses:

GERARD JOSEPH COTTYING,  
ZOLLONDEN.