

No. 655,104.

Patented July 31, 1900.

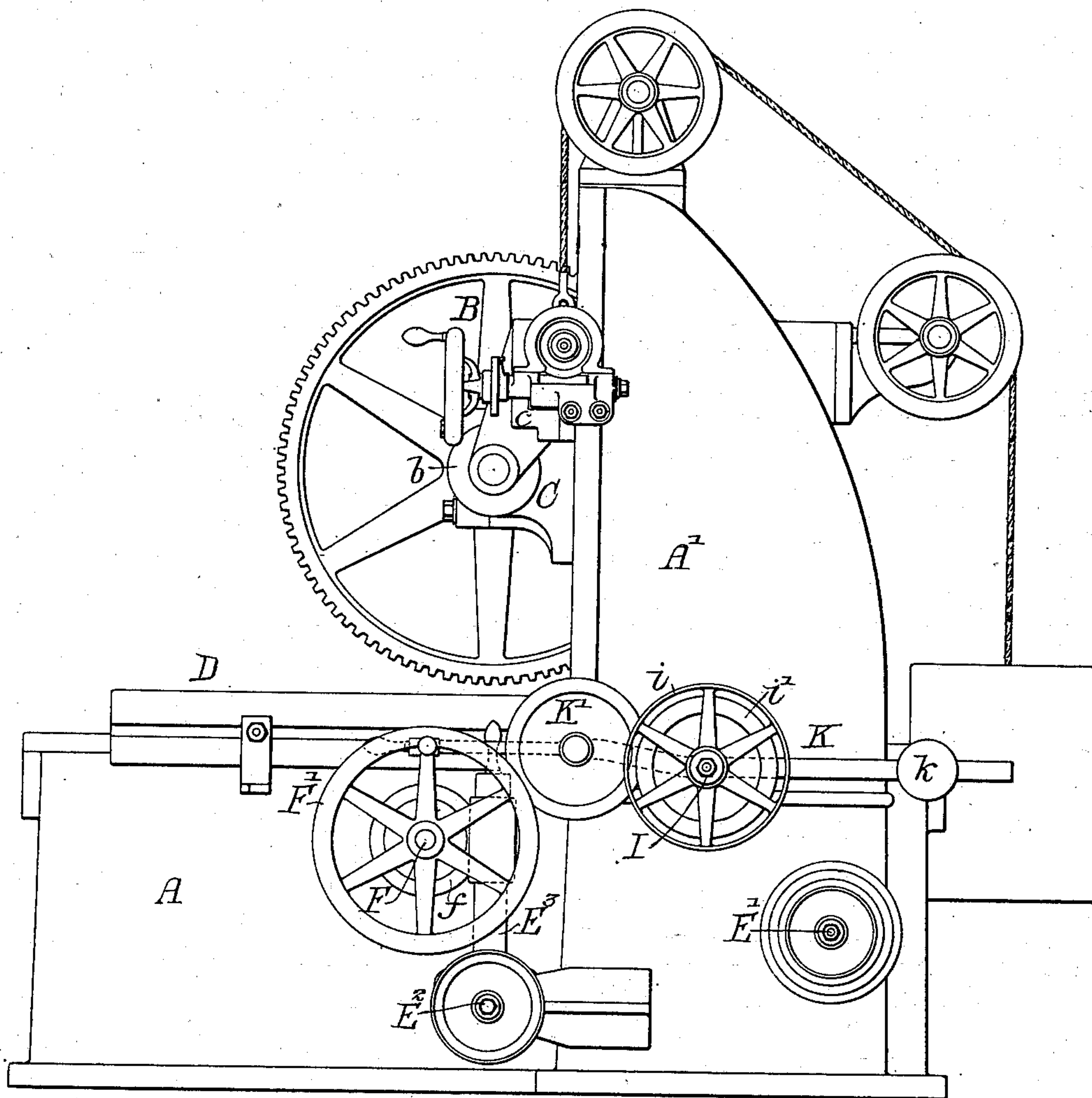
C. C. NEWTON.  
MILLING MACHINE.

(Application filed Nov. 23, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses:-  
*Charles De Cou.*  
*Louis M. F. Whitehead.*

Inventor:-  
*Charles C. Newton.*  
by His Attorneys:-  
*Howman & Johnson*

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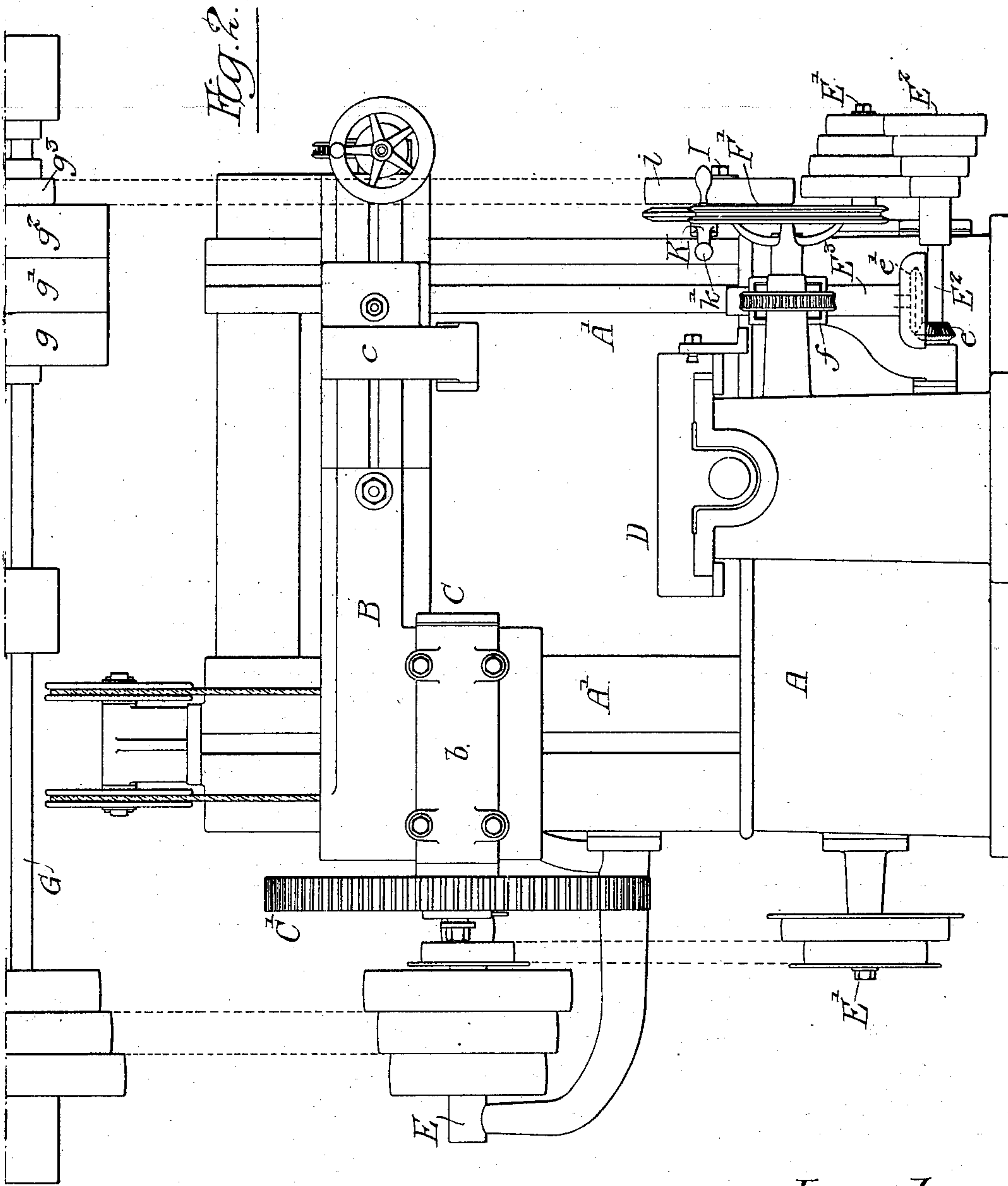
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**3 Sheets—Sheet 2.**



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Charles De Cou.  
Louis M. Whitehead.

*Inventor:-*

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by his Attorneys:-

Henry & Henry





# UNITED STATES PATENT OFFICE.

CHARLES C. NEWTON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
NEWTON MACHINE TOOL WORKS, INCORPORATED, OF SAME PLACE.

## MILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 655,104, dated July 31, 1900.

Application filed November 23, 1899. Serial No. 738,106. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES C. NEWTON, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain  
5 Improvements in Milling-Machines, of which the following is a specification.

The object of my invention is to provide means for returning the table of a milling-machine by power while the cutter mechanism is out of action.

In the accompanying drawings, Figure 1 is a side view of my improved milling-machine. Fig. 2 is a front view. Fig. 3 is an enlarged sectional view of a portion of the machine,  
15 showing the friction mechanism; and Fig. 4 is a side view of Fig. 3, partly in section.

A is the bed of the machine, having an upright extension A', to which the sliding head B is adapted.

20 C is the milling-cutter shaft, adapted to bearings b on the head B.

On the sliding head B are slideways, to which a slide c is adapted. Mechanism is provided for raising and lowering the head B,  
25 and this head is counterbalanced in the present instance, as clearly shown in Fig. 1.

Adapted to ways on the bed A is a table D. This table is driven in any suitable manner common to this class of machines from the  
30 main driving-shaft E of the machine. In the present instance this driving-shaft is belted to a shaft E', and the shaft E' is belted to a shaft E<sup>2</sup>, geared to the mechanism for feeding the table. Also geared to the shaft E<sup>2</sup> by  
35 means of bevel-gears e e' is a vertical worm-shaft E<sup>3</sup>, with which engages a worm-wheel f on the hand-shaft F, provided with a handled wheel F'. The shafts E' and E<sup>2</sup> are provided  
40 with cone-pulleys, so that the speeds can be regulated, and the shaft E' is also provided at its opposite end with a cone-pulley, which is in line with the cone-pulley on the driving-shaft E, so that the belt at this point can be shifted as well.

45 On the main driving-shaft E of the machine is a three-step cone-pulley, in the present instance in line with a three-step cone-pulley on the counter-shaft G, which is driven from the main line-shaft by a belt passing around  
50 the fast pulley g. Adjoining this fast pulley is a loose pulley g', and adjoining the pulley

g' is another loose-pulley g<sup>2</sup>, to which is secured a small pulley g<sup>3</sup>, which is in line with a belt-wheel i on the stud I of the machine. In the present instance this belt-wheel i is on  
55 the hub of a friction-wheel i', having a V-shaped groove in its periphery. The hub of the friction-wheel is mounted on the stud I, as clearly shown in Fig. 3.

Pivoted to the stud I is a lever K, having  
60 an arm extending rearwardly from the pivot, and on this arm is an adjustable counterbalance k. Carried by the lever K is a wheel K', having a tapered flange adapted to enter the groove in the wheel i' and at the same time  
65 enter a groove in the hand-wheel F', as clearly shown in Fig. 3. The lever K is provided with a handle k', within easy reach of the operator, so that when it is desired to throw the hand-wheel F' in gear with the friction-wheel  
70 i all that is necessary is to press down upon the lever K, throwing its friction-wheel K' in frictional contact with both wheels. Thus if the wheel i' is driven motion will be imparted  
75 to the hand-wheel F', and the motion will be conveyed through the hand-wheel and its connections to the table.

The milling-cutter shaft C has a gear-wheel C', which is driven from the shaft E, so that when the forward feed mechanism is thrown  
80 out of gear the milling-tool is also thrown out of gear.

The operation of the mechanism is as follows: In milling the slow forward feed is accomplished through the ordinary driving  
85 means common to this class of machines—namely, the counter-shaft G, shafts E, E', and E<sup>2</sup>—and it has been customary heretofore to return the table by the operator turning the hand-wheel F'. By providing an extra pulley  
90 g<sup>2</sup> on the counter-shaft G, so that the driving-belt from the main line-shaft can be shifted onto this loose pulley, and by belting this pulley to the pulley i, which is connected to the friction-wheel i', I am enabled to drive  
95 this friction-wheel when the forward feed mechanism and cutter-shaft are thrown out of gear, and by the operator simply pressing down upon the lever K this friction-wheel, which is driven in a reverse direction to the  
100 feed mechanism, drives the feed mechanism of the table rearwardly, returning the table



quickly through the medium of the hand-wheel F', worm, worm-gearing, shaft E<sup>3</sup>, and shaft E<sup>2</sup>. By throwing out the cutter-shaft with the forward feed the work is returned  
5 under the cutter without it being marred by the cutter striking it.

The forward feed mechanism and cutter-shaft can be thrown into gear by shifting the main driving-belt onto the fast pulley.

10 I claim as my invention—

1. The combination in a milling-machine, of a bed, a milling-tool shaft, means for driving said shaft so as to rotate the tool, means for moving the bed forward, and power  
15 mechanism for returning the bed when the forward feed mechanism and milling-tool shaft are out of gear, and means for throwing said power mechanism into gear with the bed, substantially as described.

20 2. The combination in a milling-machine, of a bed, a standard, milling mechanism carried by the standard, a table, driving mechanism for the table, a counter-shaft belted to the driving mechanism, a fast pulley and a  
25 loose pulley on the counter-shaft, a wheel belted to the loose pulley, a friction-wheel

connected to the pulley, and a friction-wheel geared to the feed mechanism of the table, a lever, a friction-wheel thereon engaging the  
30 two friction-wheels so that a return motion may be imparted to the table, substantially as described.

3. The combination in a milling-machine, of a bed, a table thereon, milling mechanism, a shaft E<sup>2</sup>, means for driving the shaft so as  
35 to feed the table forward, a vertical shaft E<sup>3</sup> geared to the shaft E<sup>2</sup>, a shaft, F, geared to the vertical shaft, a friction-wheel mounted on the shaft F, a driven friction-wheel i' adapted to be thrown into gear when the feed  
40 mechanism is stopped, a lever K carrying a friction-wheel K', adapted to be thrown into gear with both the friction-wheels i and F', substantially as and for the purpose set forth.

In testimony whereof I have signed my  
45 name to this specification in the presence of two subscribing witnesses.

CHARLES C. NEWTON.

Witnesses:

WILL. A. BARR,  
JOS. H. KLEIN.