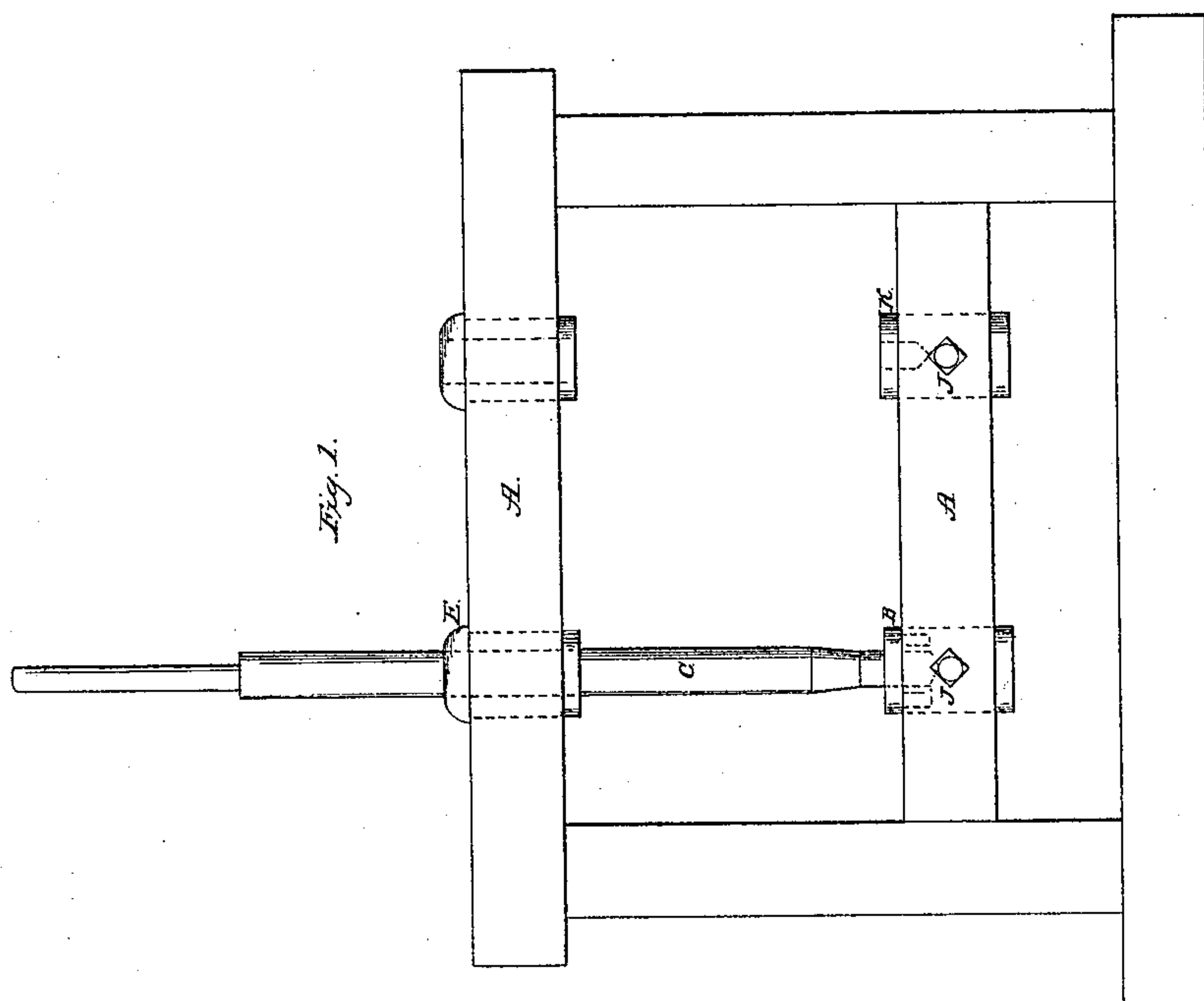
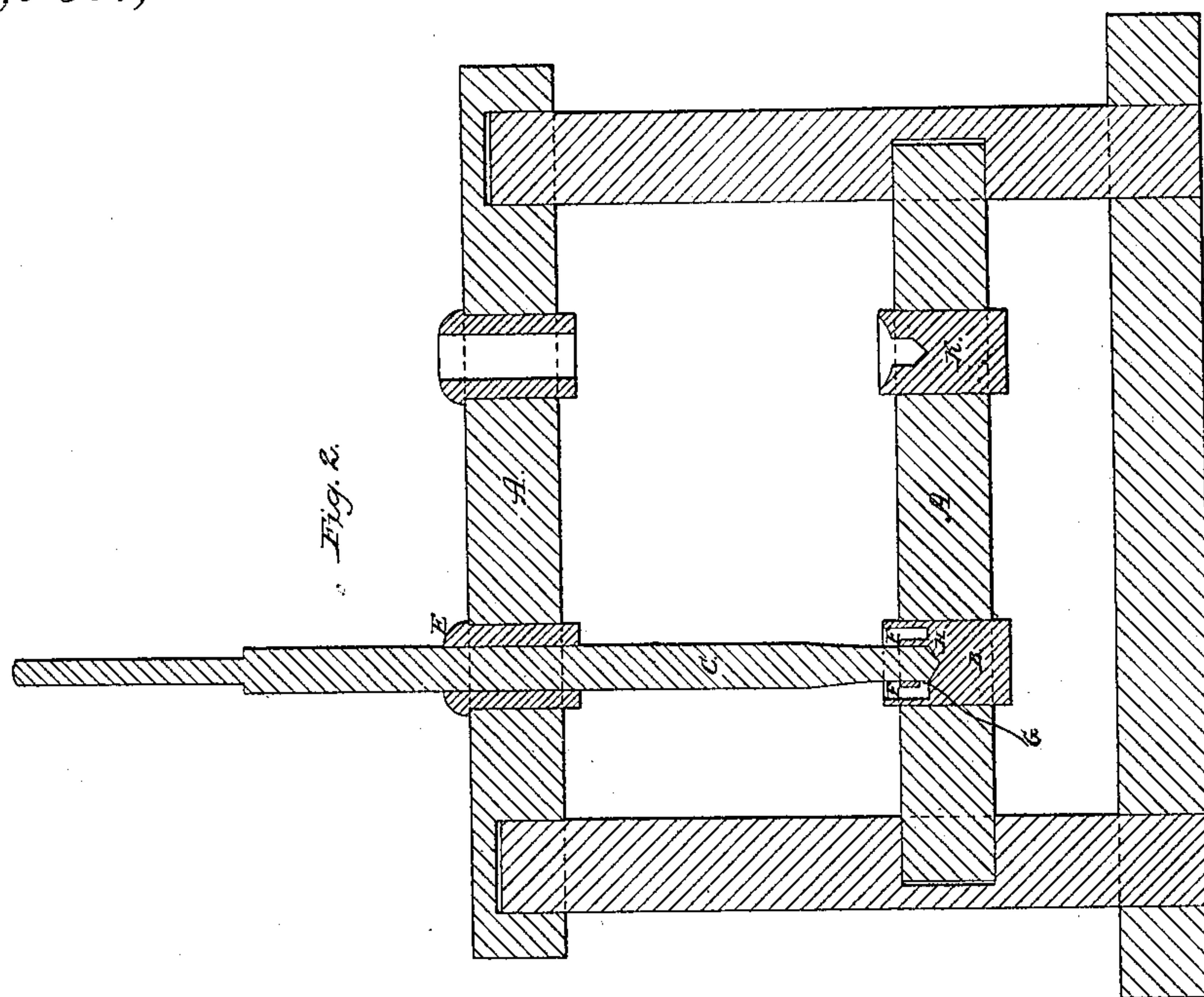


I. N. Parker,
Mill Spindle,

No 13,954,

Patented Dec. 18, 1855.



UNITED STATES PATENT OFFICE.

ISAAC N. PARKER, OF LEWISTON, MAINE.

MILL-SPINDLE STEP.

Specification of Letters Patent No. 13,954, dated December 18, 1855.

To all whom it may concern:

Be it known that I, ISAAC N. PARKER, of Lewiston, in the county of Androscoggin and State of Maine, have invented a new and useful Improvement in Steps to Sustain the Lower Ends of Spinning and other Spindles; and I hereby declare that the following specification, in connection with the accompanying drawings, constitutes a lucid, faithful, and exact description of the construction and operation of my invention.

In referring to the drawings, Figure 1, denotes a front side elevation of the rails as attached to the ordinary spinning frame, and spindle with my improved step attached thereto, also one of the old kind of steps. Fig. 2 denotes a longitudinal and vertical section of the same.

The steps used in the old method of spinning have been constructed by recessing the ends of them to receive the end of the spindle, and in addition to form a concave recess partially as deep as the one to which the lower end of the spindle is fitted, this concave recess being formed to hold the oil necessary to lubricate the bearing or end of the spindle. This manner of constructing steps will not effectually answer the desired purpose especially where great speed of the spindle is required, as the oil which is continually coming in contact with the surface of the spindle, is entirely thrown out of the concave recess by the centrifugal force caused by the great velocity of the spindle when in motion.

The nature of my invention consists of constructing steps for spindles, which are recessed in the form hereafter shown, so as the oil used in lubricating the lower end of the spindle will not be thrown out of the step by the great velocity of the spindle, and so that this oil will constantly communicate with the surface of the lower end of the spindle by means of the hole, leading from the secondary chamber, thus forcing every particle of the lubricating virtue in the oil to be used to the very best advantage.

To enable persons skilled in the art to which my invention appertains to construct and carry out the same, I will describe it as follows.

A, A, in both of the figures of the drawing designate the upper and lower rails which are made of iron and attached firmly to the framework of the spinning frame,

and are perforated vertically at the proper places to receive the composition steps B, and bushings E, which are placed in these perforations, and each one of the steps is thus secured or held in its position by the set screws J. The upper ends of the steps are recessed as seen at H, Fig. 2, or at both ends if desired, so as to receive the spindles C, and around this recess I form a secondary chamber F, by leaving a portion of metal between the recess for the end of the spindle and this chamber, the top of which is made somewhat lower than the outside of the step. The recess for the lower end of the spindle and the secondary chamber F, or reservoir for the oil are connected together by the passage or hole as seen at G, so as that the oil in this secondary chamber will be in constant communication through this hole G, with the lower end of the spindles thereby keeping them perfectly oiled or lubricated for a great length of time, at each partial filling the secondary chambers with oil.

It will be seen that the step is so recessed or shaped as to constitute a reservoir to hold a quantity of oil from which the bearing or end of the spindle is kept constantly lubricated, at the same time is entirely separate from the oil in the reservoir or recess, thus as the oil flows from the reservoir into the bottom of the step, thence up over the top into the reservoir again so that it is all retained and kept in constant communication with the bearing while the great velocity of the spindle has no effect to throw the oil out of the step.

By the peculiar shape of the recess, secondary chamber, and connecting passage of my step, I have found by actual experiment that every particle of the oil is wholly prevented from being thrown out of the step, and it is used to the very best advantage, although a great velocity is imparted to the spindle.

By the side of my step in the lower rail, I place one of the old steps the same as heretofore used, seen at K, so as to illustrate the difference between the old step and my improved one. It will readily be seen that the body of the oil will be constantly in contact with the surface of the spindle, until it is all thrown out by the spindle's velocity which is soon done after the oil is put into the step.

The novelties and advantages in my im-

proved step are as follows: For instance, in the spinning room of which I have charge and where ten thousand spindles are in constant operation, in the old way the constant labor of two girls was daily necessary to merely oil these steps and spindles, and even at that, an almost constant squeaking was heard in some part of the room, caused by the oil being thrown out of the step and the consequent dryness of the spindle, while a consumption of twelve quarts of the best sperm oil per week was as little as it was safe to use, and in using my steps, it is not necessary to oil them oftener than once a week, (and I think they can be safely used a much longer time) and with a consumption of only two quarts of oil, and two days' labor for one girl, thus saving weekly in only one room, from five to six dollars in expense of help, and five dollars in expense of oil, or five hundred per cent. in both labor and oil, besides the incalculable benefit of having the spindles always perfectly lubricated.

It is impossible to run spindles in the old steps at a greater speed than five thousand revolutions per minute even with the above mentioned loss, while I have found by actual experiment that a velocity of six thousand revolutions per minute can be imparted to spindles running in my steps, and I see no reason why they could not be run a much greater speed, thus proving beyond a ques-

tion, that at least twenty per cent. can be gained in the speed of the spindles, and with far less wear in the running surface.

I have no doubt but iron will answer every purpose for making my steps, as the oiling arrangement is so perfect that there would be no chance to mar the working surface, by revolving of the spindles, thus a saving of about four or five dollars, or six hundred per cent. would be made in the cost of metal for steps in the construction of every spinning frame.

The art of using these steps as invented by me will need no illustration further than the description of the construction before given to make it plain to any person properly skilled in the art to which my invention appertains.

I do not claim as my invention, the step described in W. P. Coleman's patent, dated October 1 1850, as such are well known.

What I claim as my invention is—

The formation in the step of the oil reservoir F surrounding, but separated from the spindle and communicating with it by the opening G, at its bottom, with the periphery of the spindle, substantially in the manner described and for the purposes fully set forth.

ISAAC N. PARKER.

Witnesses:

H. A. CHANNEL,
JOHN COMSTOCK.