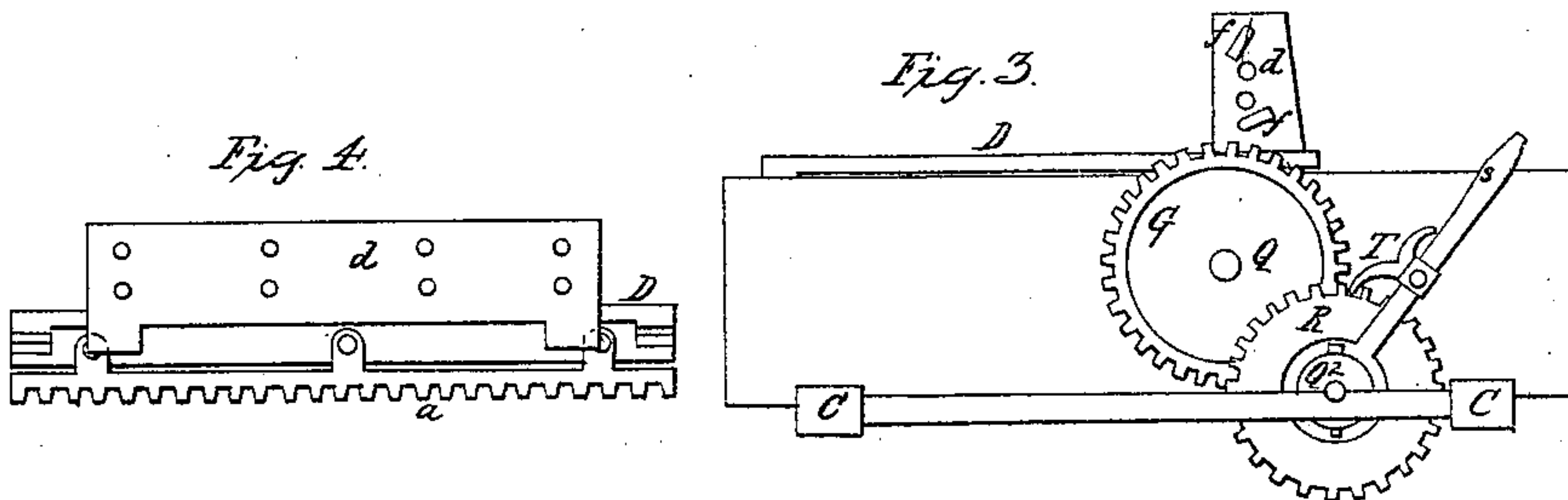
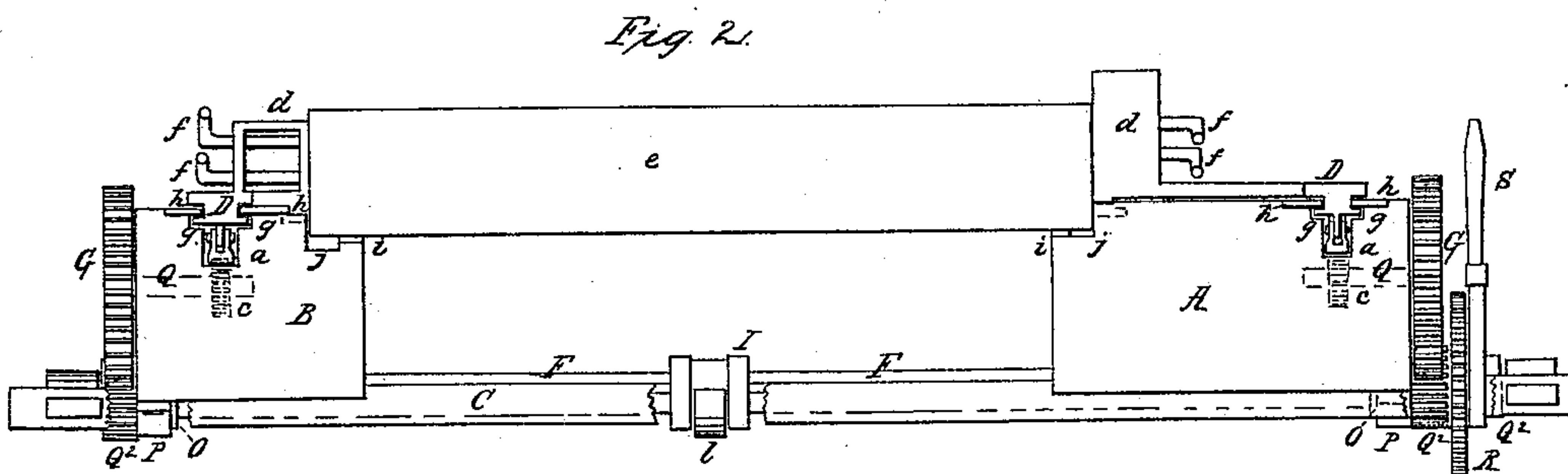
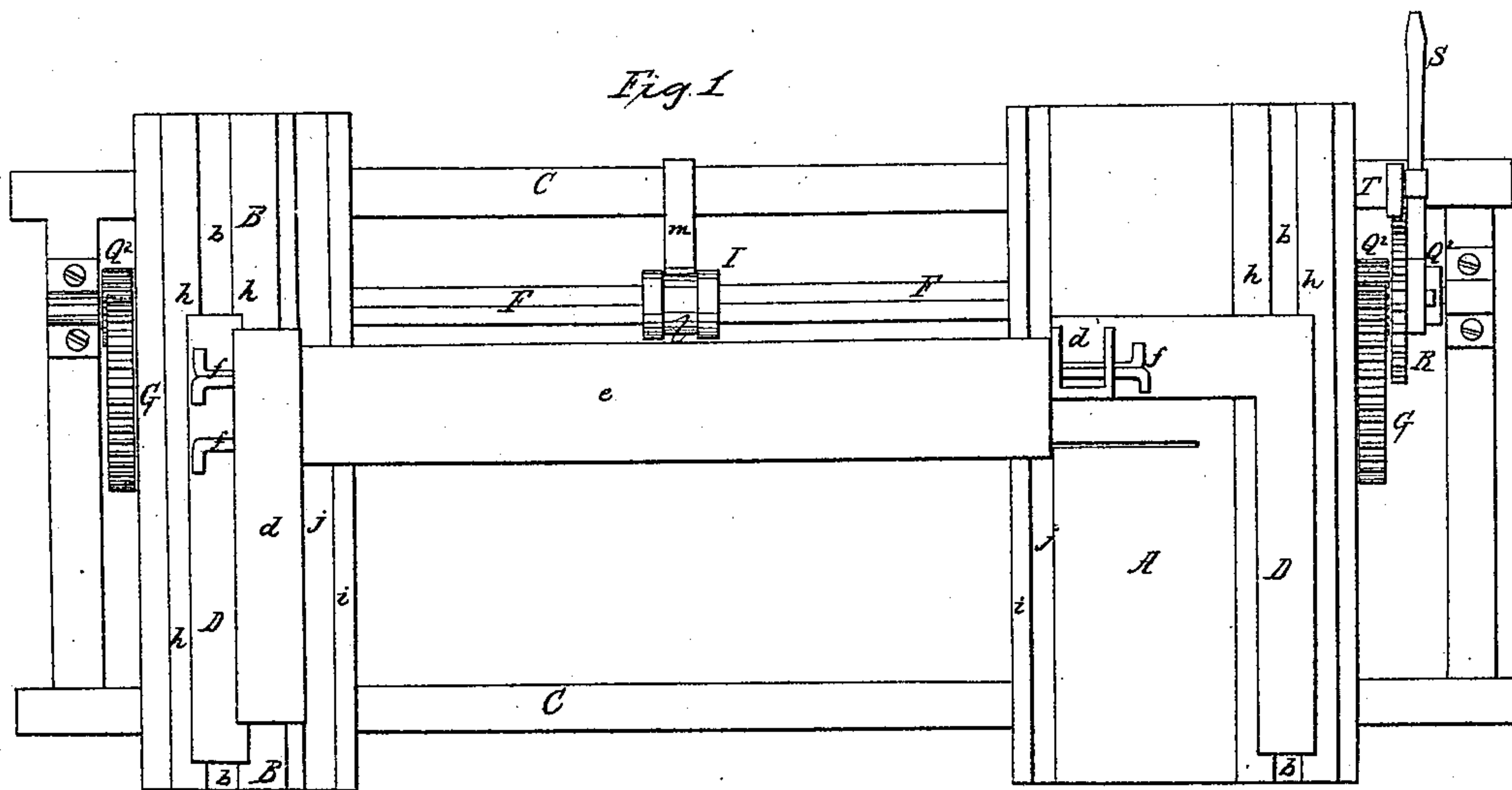


J. S. Snider,

Saw-Mill Head-Block.

No. 14,206.

Patented Feb. 5, 1856.



UNITED STATES PATENT OFFICE.

JOHN S. SNIDER, OF LANCASTER, OHIO.

SAWMILL.

Specification of Letters Patent No. 14,206, dated February 5, 1856.

To all whom it may concern:

Be it known that I, JOHN S. SNIDER, of the city of Lancaster, in the county of Fairfield and State of Ohio, have invented certain new and useful Improvements in Sawmills; and I do hereby declare the following to be a full and exact description thereof, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a top view of the head and tail blocks showing a short log dogged thereto; Fig. 2, side view; Fig. 3, elevation of the head block; Fig 4, view of the slide and dog box and rack attached to the under side of the slide.

Similar letters in the several figures refer to corresponding parts.

A is the head block; B, tail block; C C, the side timbers of the carriage which support the head and tail blocks and over which they move in arranging them to suit different lengths of logs.

D D are horizontal metallic slides to which the log is dogged, said slides being provided with racks, *a*, on the underside which move in grooves, *b*, in the head and tail blocks, by the action of pinions on a single long shaft extending under both head and tail block. This rack on the underside of the slide should be cast separate from the slide and bolted to ribs on the under part of the slide—(or in some other convenient way) there being in each holes or mortises to receive bolts or other devices for fastening them firmly together—in such manner that the rack may be easily detached for the purpose of changing ends when it becomes abraded, or of removing and supplanting it, when broken, or otherwise unfit for use.

This is of great importance—especially at the head block where it is necessary that the plate, arm, and dog-post should be cast in one piece—and the plate or slide neatly and firmly fitted to its ways, in order that there may be no yielding of the parts on each other or with reference to the block. Such yielding would destroy the truth of the set and if the rack were cast with the slide in one piece so that it would be necessary to renew all when the rack should become unfit for service, every case of repair would be attended with great expense.

On the upper surfaces of the slides are cast posts, or pillars *d*, to which the ends of

the log *e* are dogged firmly by means of horizontal pin dogs *f* passed through corresponding openings in the posts or pillars and into the ends of the log which hold the log firmly to the slides. The slides are prevented from rising from the head and tail blocks by means of hooks *g* cast on the under sides of the former, hooking under horizontal parallel plates or ribs *h* fastened to the latter. The log thus secured may or may not touch the parallel ribs or ways *i* secured to the head and tail blocks parallel with the slides. The log may be moved toward the saw in a suspended position; or it may be moved over the parallel ways while the rough surface of the log near its ends, usually termed stub short, is allowed to move along in the channels *j* formed between the said ribs and slides on the head and tail blocks—the even or sawed surface sliding over the aforesaid ways or plates.

F is a horizontal square shaft arranged longitudinally beneath the head and tail blocks and having its bearings in cross timbers of the carriage. This shaft connects the head and tail blocks. It passes through the hollow shafts O attached to the head and tail blocks.

I is a sliding supporting box or pulley for sustaining the line shaft at the middle when of great length and while sawing long logs—said supporting pulley having a square opening in the center through which the line shaft passes and a circular groove or channel around its outer surface or periphery to receive or admit a semicircular bearing or collar *l* resting upon a sliding arm *m* attached by one of its ends to one of the side timbers of the carriage over which it slides freely, so that it may be moved to the right or to the left carrying with it the said supporting pulley. This simple device is very important in saw mills, for without it the line shaft F would bend down at the middle to such degree that it would not act as intended, and consequently the sawyer would soon find that his mill would be quite deficient at this point, and would need such device. It also prevents the shaft from being broken by the accidental falling upon it of a log, or any other heavy body.

G G are two cog wheels secured upon the outer ends of the short transverse shafts Q on which there are pinions *c c* for engaging

with the racks on the under sides of the slides D and by which the log is set, or carried toward the saw.

Rectangular or other shaped sliding blocks for holding the boards edgewise in a stack or comb till the whole log is cut up, may be secured to the head and tail blocks by means of screws, or other devices, whose heads fit into grooves, and are held therein by plates and permitted to move back and forth and clamped by means of nuts and screws.

O O are two short hollow shafts secured to the under side of the head and tail blocks by boxes P, in which they are allowed to turn—there being grooves around said shafts to admit projections on the insides of the boxes by which they are held in their proper places and made to move over the longitudinal shaft F with the head and tail blocks. On these hollow shafts are the pinions Q^2 Q^2 into which work the large cog wheels G G on the transverse shafts Q Q.

R is the ratchet wheel on the axle Q^2 into which the pawl attached to the setting lever works.

T is the pawl.

S is the setting lever to which the pawl is attached. The end of this setting lever is enlarged and contains a circular opening the diameter of the short axle Q^2 which is inserted into the same loosely so that the said shaft answers as the fulcrum of the lever in setting the log, the attendant actuating the hand lever of the head block, communicating motion simultaneously to the slide of the tail block, through the agency of the longitudinal shaft F and the racks and pinions.

The log having been dogged to the cogged slides, the holding blocks adjusted and the head and tail blocks keyed fast to the sides of the carriage the log will remain in the head and tail blocks till sawed up into boards—the boards remaining on the head and tail blocks in a single stack till removed in a body which is accomplished when the mill is stopped by first removing the holding blocks from the grooves.

The horizontal portions D of the slides should be made sufficiently wide to cover the grooves b in the head and tail blocks and effectually exclude the saw dust from racks and pinions. But should any dust insinuate itself into the grooves it is caused to pass out through oblique openings in the head and tail blocks and fall below the same.

To produce the exact and uniform results claimed for the working of my machine every thing depends upon the size of the several wheels and the number of cogs upon each, in the combination as set out in the original specification and model. The two cog wheels G, G, are of the same size and

each 10.25 inches in diameter spaced off into 38 equal cogs with pitch of .852 of an inch. The two outside pinion wheels Q, Q, are of equal size, each 3.815 inches in diameter spaced off into 14 equal cogs with pitch of .852 of an inch. The two pinion wheels under the slides c, c, engaging with the racks are also of equal size, each 3.4166 inches in diameter spaced off into 12 equal cogs with pitch of .8944 of an inch. The racks a, a, are longer or shorter as may be desired but are divided throughout their length with cogs having pitch of .8944 of an inch and engaging with the inside pinion wheels c, c.

R, the ratchet, or more properly the scale wheel, is 7.63 inches in diameter spaced off to 32 equal cogs with .75 of an inch pitch.

The foregoing is the exact size of each of the wheels and cogs of the working machine required to move the slides exactly one eighth of an inch for each cog upon the scale wheel passed over by the pawl. This result may be varied at pleasure by varying the size but preserving the combination and proportion of the several wheels.

What I claim as my invention and for which I ask the patent is—

1. Such construction of the scale wheel and its combination with the large cog wheel G, that the position of the lever when on its rest will be always zero and that the cog may be moved at both its ends equally, any required distance by raising the lever from its rest and counting one eighth of an inch (or a different fraction according to the cast of the wheels) for each cog that the pawl may pass over and pressing the lever down again upon its rest when the requisite distance is obtained, so that the setting of the log requires no calculation or reference to a scale and may be done with perfect accuracy by the ear or by the eye; and it is thus set at both ends by a single scale wheel and a single pawl and thus necessarily set exactly alike at both ends, which is not the case where the ends are set each by its separate gearing.

2. I also claim the combination of wheels which are so adjusted as to effect the above named objects, and also to give greater power to the lever in moving heavy logs, and more accuracy in adjusting them as the log is thus made to move slow in proportion to the motion of the lever and is not subject to be put out of its place by its own momentum, or by the spring of the rods.

3. In this construction and combination the journal and the pinion wheel and scale wheel are cast together and the rod passes through the journal and moves with it, so that the lever when pressed down moves the pinion wheel which gives motion to the wheel which moves the head block slides; and at the same time the journal moves the

rod and by it the tail block slides—so that
the rod communicates motion to the tail
block slide only and is not put to the strain
requisite to move both slides and with them
5 both ends of a heavy log; the combination
of construction which produces this effect
I also claim and ask for it a patent.

In testimony whereof I have hereunto
signed my name before two subscribing wit-
nesses.

JOHN S. SNIDER.

Witnesses:

WM. P. ELLIOT,
JOHN F. CLARK.