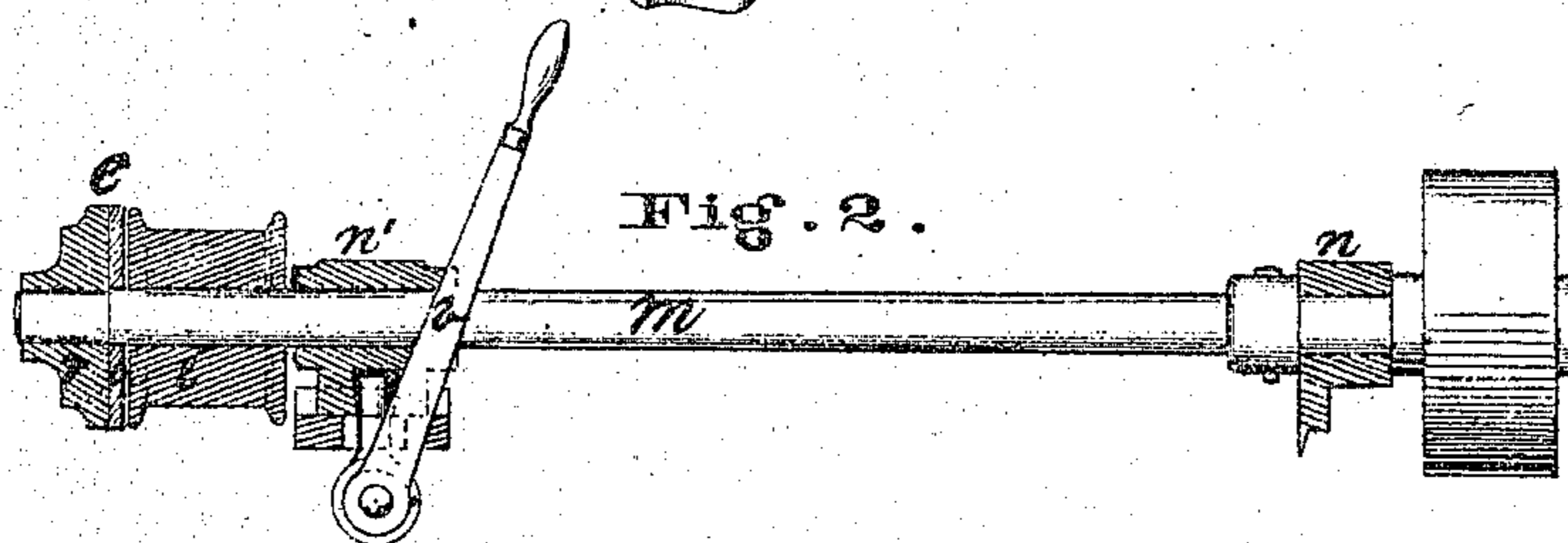
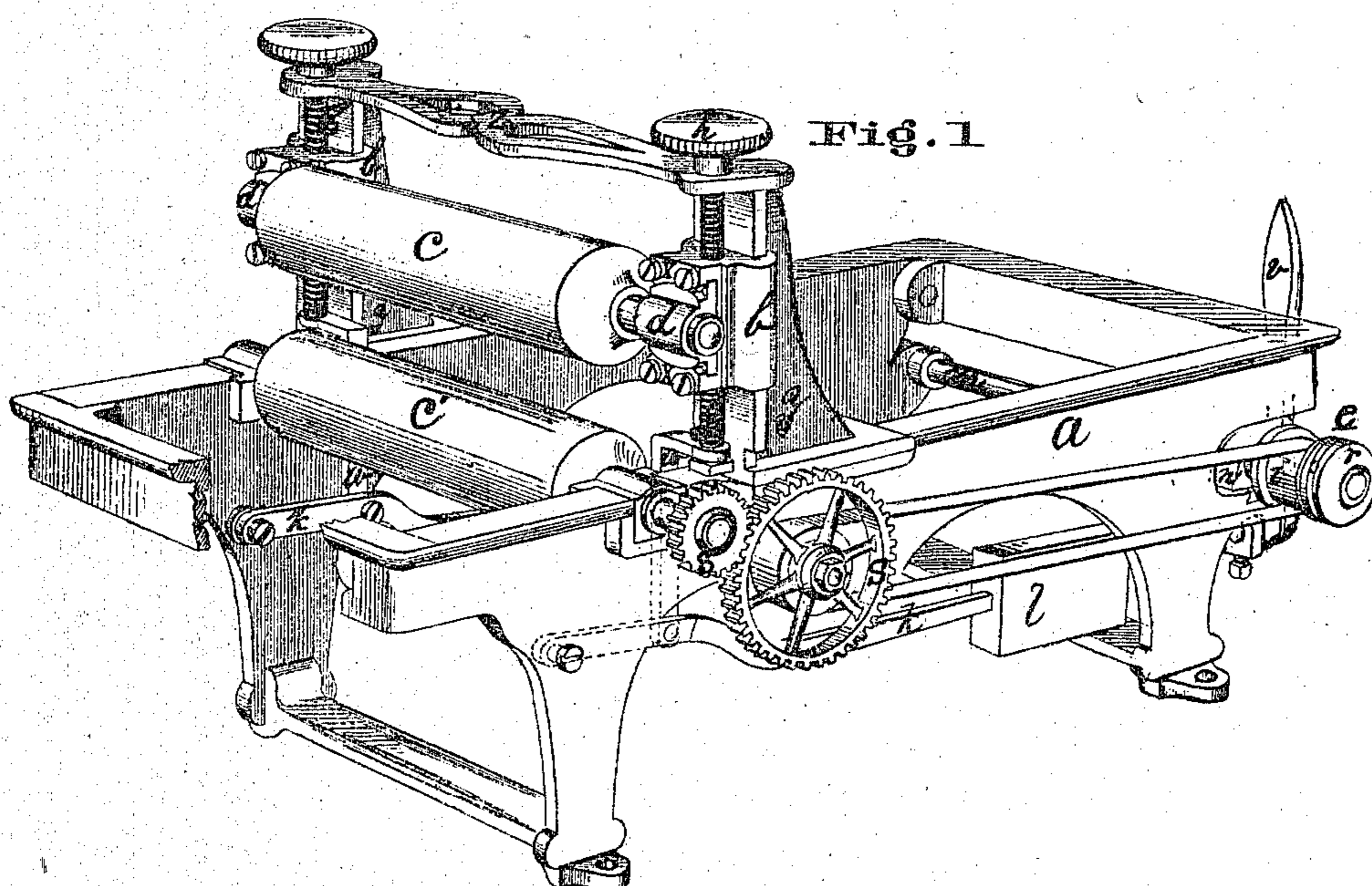


*J. Richards,*  
*Wood Planing.*  
*No. 103080.      Patented May 17. 1870.*



*Attest*  
*Chas. B. Collier*  
*Geo. Gibbie*

*Inventor.* *J. Richards.*

# United States Patent Office.

JOHN RICHARDS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO J. A. FAY & CO., OF CINCINNATI, OHIO.

Letters Patent No. 103,080, dated May 17, 1870.

## IMPROVEMENT IN PLANING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, JOHN RICHARDS, of the city and county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Planing-Machines for planing wood, of which the following is a specification.

### *Nature and Objects of the Invention.*

This invention relates—

First, to a device for driving, stopping, and starting the feeding mechanism of wood-planing machines by means of a friction-clutch connected with the gearing of the feed-rolls and the driving-shaft of the machine; and

Secondly, to an improved method of supporting and adjusting the top or yielding feed-roll of such machines, in such a manner that the bearings of the shafts will yield and allow the roll to adapt its position to the irregularities of the lumber as it passes between the rolls, and so that the rolls may be readily adjusted to suit the lumber of various depths, as hereinafter more fully explained; and

Thirdly, in connecting the weighting-levers directly with the adjusting-screws that regulate the position of the top rolls by means of a link and swivel-joint, as hereinafter described.

The objects of the improvement first named will be explained by saying that, in planing-machines of this kind, where rolls are employed to feed the lumber through the machine, the motion of the feeding-rolls is slow, and great force is required to overcome the resistance of the pressure-guards; and it is common to connect the rolls with the driving or other shaft of the machine by a train of gearing properly arranged and proportioned to give the proper speed and force to the rolls, as will be readily understood by those skilled in the making of such machines.

The first mover in this train of gearing is usually driven by a belt, and the feed-motion engaged and disengaged by a positive clutch. The motion of this first mover being rapid, there is constant danger of breaking the teeth of the wheels, and injuring and wearing the parts by concussion.

One object of this invention is to avoid these objections by starting the rolls gradually with a frictional clutch, the action of which is well understood as being free from the objections cited.

This friction-clutch, while its force is sufficient to drive the gearing and rolls, will yield if any accident happens to the machinery, or the lumber meets with any obstruction in its passage through the machine, and allow the rolls to stop without straining or breaking the parts.

The second part of this invention, relating to the manner of supporting and adjusting the top or yielding feed-roll of planing-machines, has for its object the free pivoting of the bearings in the line of the axis of the roll, and in so arranging the several parts that

they can be easily fitted by planing, as illustrated in the drawings.

### *Drawings.*

Figure 1 is a perspective elevation of the frame of a wood-planing machine, with a pair of feeding-rolls, and other parts embodying my improvements.

Figure 2 is a detail of fig. 1, showing the driving-shaft, with sectional view of the frictional feeding-device.

Similar letters of reference indicate corresponding parts.

### *General Description.*

*a* is the main frame.

*c c* are the feeding-rolls.

*m* is the driving-shaft.

At *e* is shown the friction-clutch, consisting of parts *r o i n* and *v*.

*s s* are gears for driving the rolls.

*n n* are the bearings of the top or yielding roll, and *b b* are the carriers on which these bearings are mounted.

*y y* are standards for supporting the carriers *b b* and top roll *c*.

*l* is the compressing weight.

*k k* are levers, and

*w w* links connecting the levers with the adjusting-screws *g g*.

*n' n'* are the bearings of shaft *m*.

*r* is a disk or flange fastened to and revolves with shaft *m*.

*o* is a washer of leather, wood, or other suitable material, interposed between the flange *r* and pulley *i*, on which the feed-belt runs.

The bearing *n'* is movable, and is pressed against the pulley *i* by means of the lever *v* and mechanism, as shown.

The pulley *i* is, in turn, pressed against the washer *o* and the flange *r*, and set in motion by the frictional contact of washer *o*.

By reversing the lever *v* the pulley *i* is released from its contact with washer *o*, and, having nothing to drive it but the lubricated bearing on shaft *m*, stops the feed.

It will be understood that the pulley *i* may be made with several faces, having different diameters, to regulate the feed of the machines; also, that different modifications of mechanism for moving the bearing *n'* may be employed without changing the nature of this invention; also, that the faces of the frictional clutch need not be radial from the shaft, but arranged in any of the known forms for such devices, and secure the effects, as herein described.

I am aware that similar results as to gradually starting the feed may be attained by a shifting belt that is moved from a loose to a tight pulley; also, that a tight

ening-pulley, to regulate the tension of the belt, may be used to operate much the same; but, in neither case can a set of cones or graduating pulleys be employed at this place to regulate the rate of the feed.

To raise or lower the roll *c* the screws *g g* are turned by means of the wheel *h*, or other mechanism. The carriers *b b* are moved up and down upon the standards *y y*. If one end of the roll only is moved, or the two ends are moved unequal distances, the bearings *d d* yield to accommodate such movement, by means of the circular flanges which are fitted loosely under the gib pieces *x x*, to admit of a limited rotation of the bearings *d*.

The weight *l* and lever *k* are connected with the carriers *b* by means of the links *w w* and screws *g g*, and are not raised or lowered in adjusting the roll *c*. When the roll *c* is raised by the lumber, the screws slide loosely through their bearings in the piece *z*, and lever *k* with link *w* are raised with it, as will be understood.

Having thus described my invention,

I do not claim the use of a friction-clutch for stopping and starting the feeding mechanism of wood-planing machines; but do claim as my invention and desire to secure by Letters Patent—

1. The radial friction-plates *r i*, with the friction-washer *o*, constructed as described, in combination with the movable bearing *n*.

2. The sliding carriers *b b*, when provided with adjustable bearings *d d*, constructed as shown, for the purposes specified.

3. Connecting the levers *k k* directly to the adjusting-screws *g g* by means of links *w w* with a swivel-joint, substantially in the manner and for the purposes herein specified.

JOHN RICHARDS.

Witnesses:

CHAS. B. COLLIER,  
GEO. GEBBIE.