

(Model.)

W. S. BRIGGS.
ROLLING MILL APPLIANCES.

No. 246,715.

Patented Sept. 6, 1881.

Fig. 3.

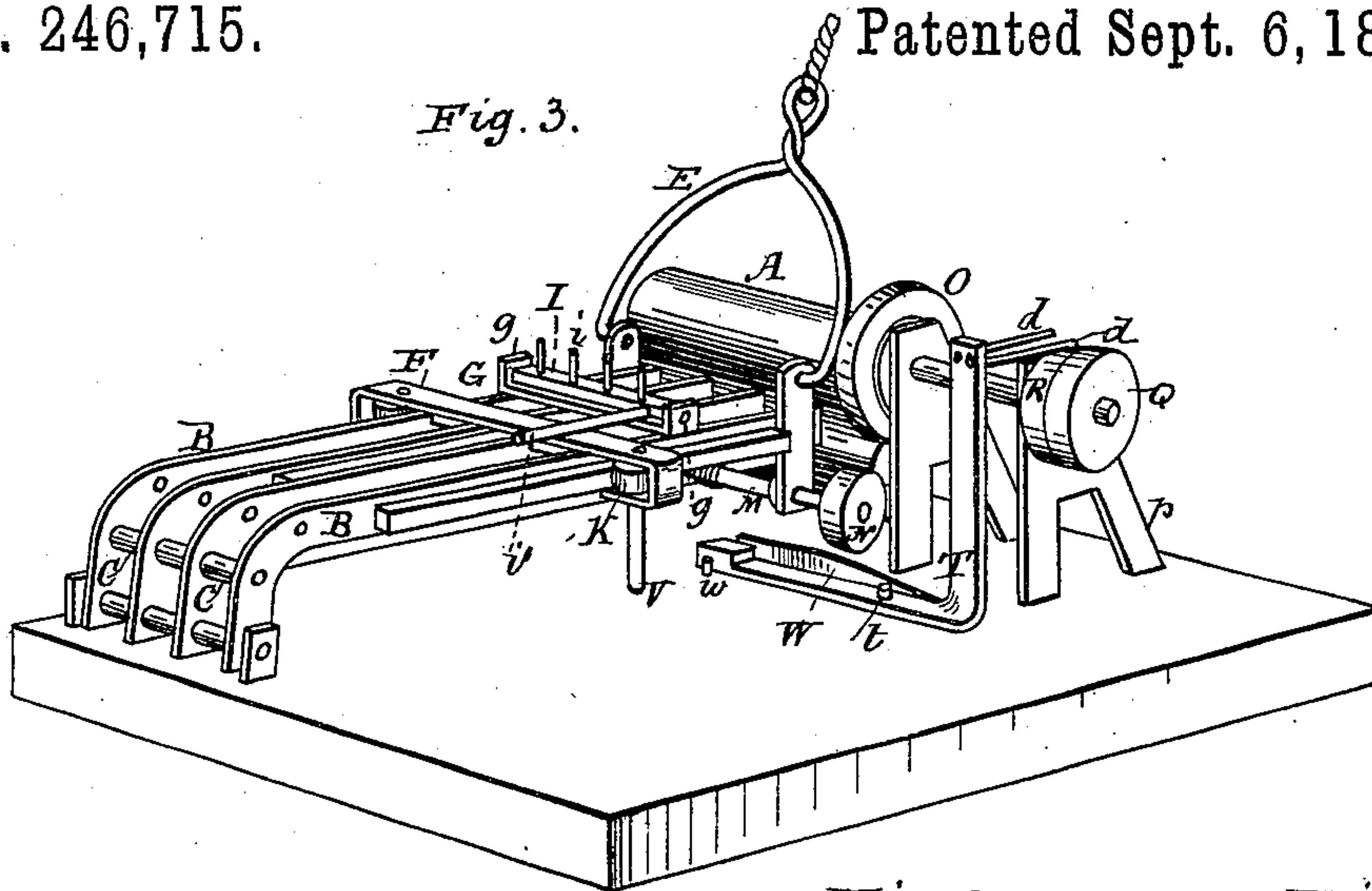


Fig. 2.

Fig. 5.

Fig. 4.

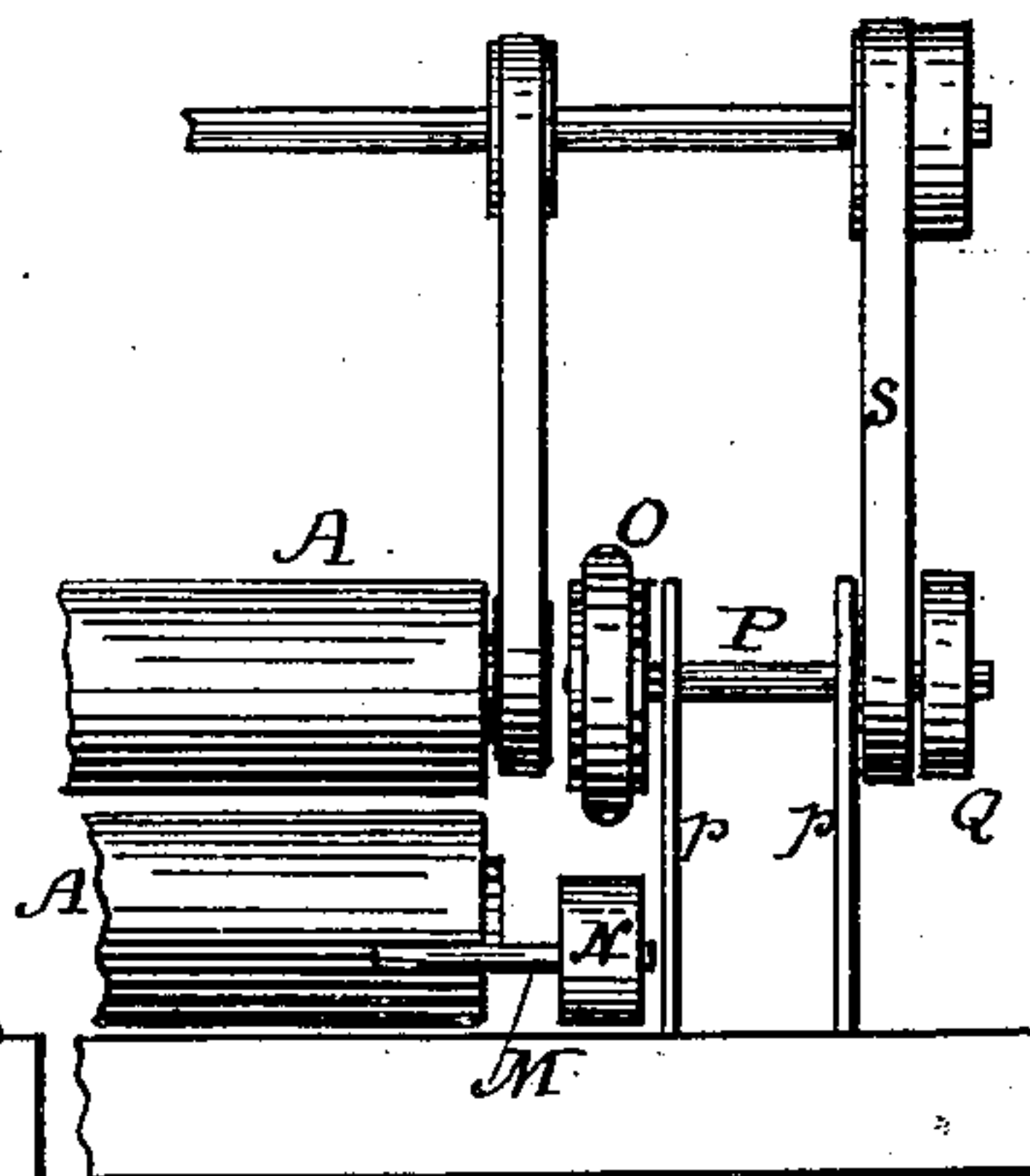
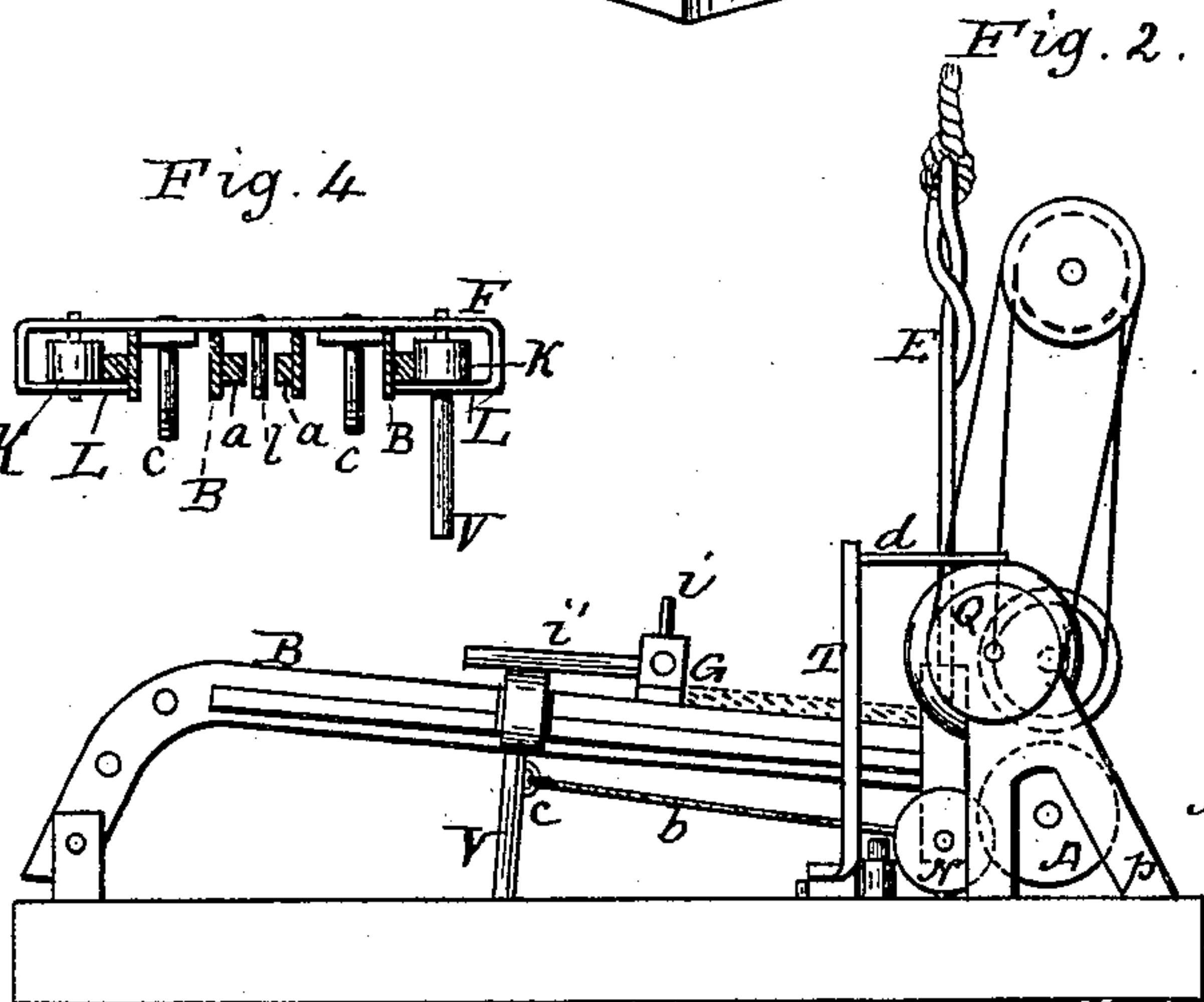
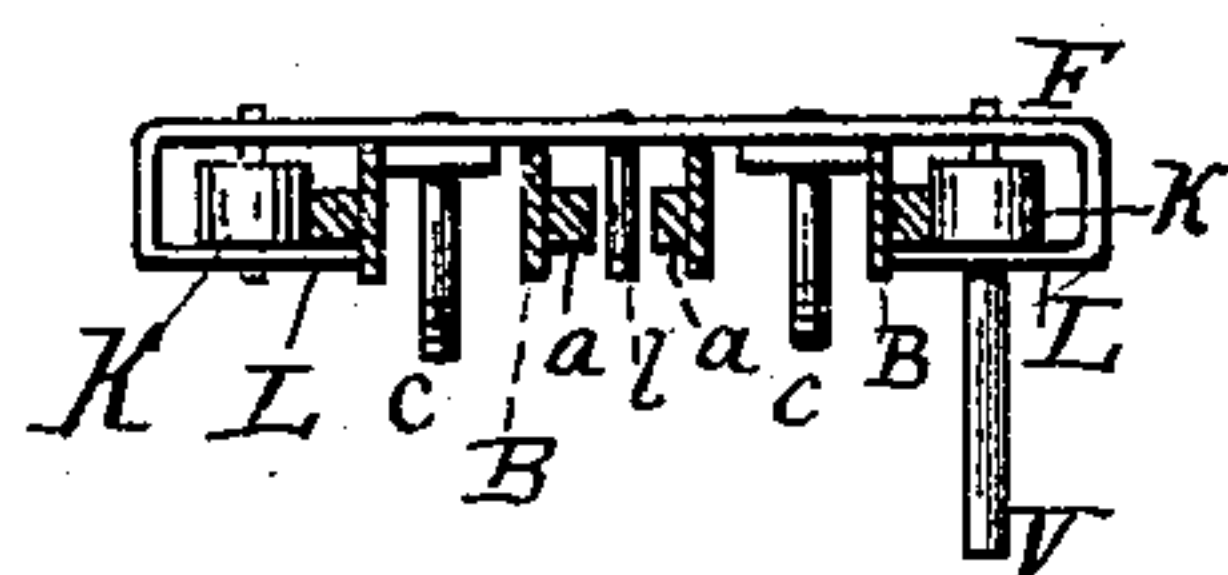
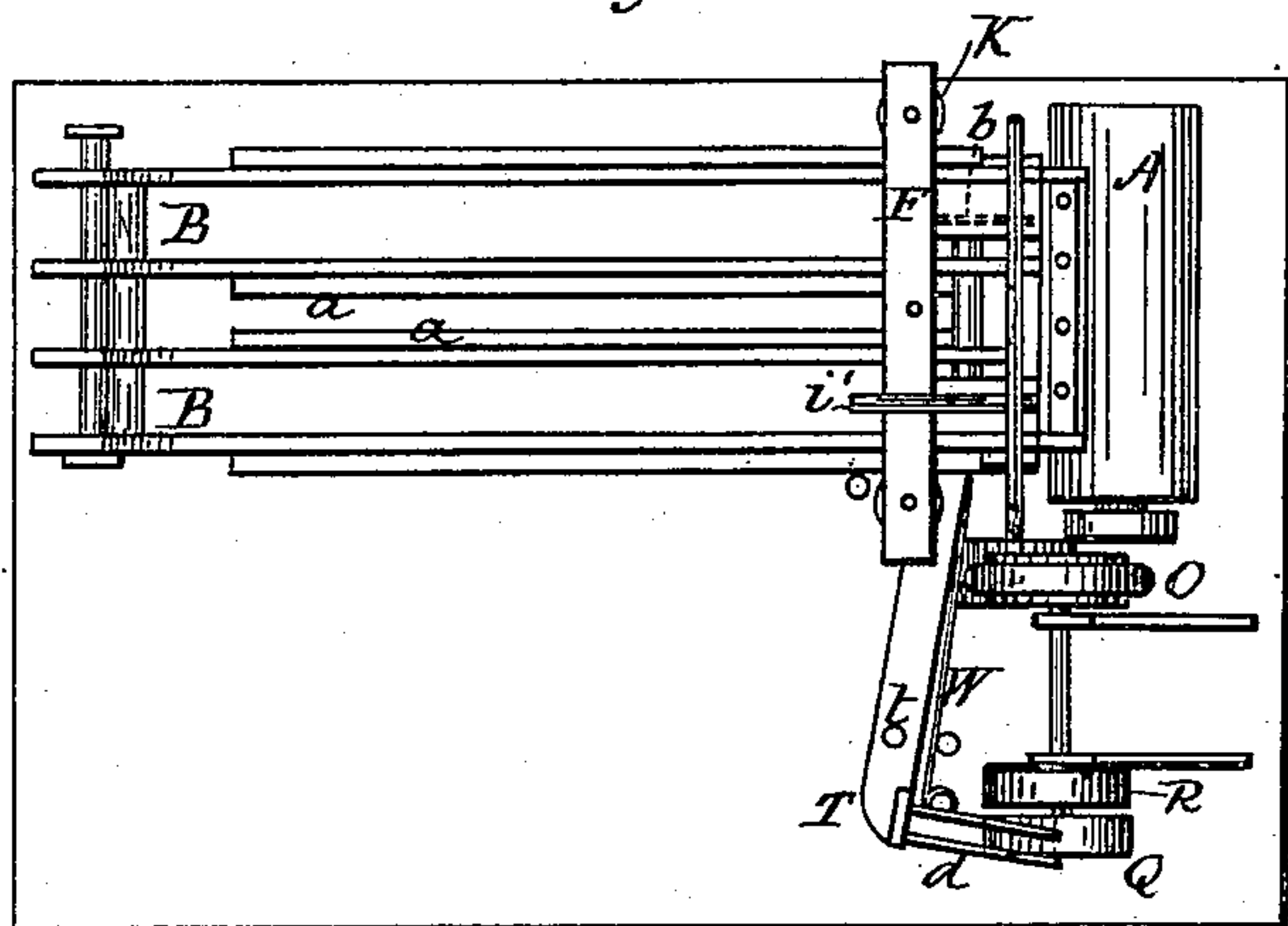


Fig. 1.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM S. BRIGGS, OF SOUTH CHESTER, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO PHILIP CONNARTY, OF SAME PLACE.

ROLLING-MILL APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 246,715, dated September 6, 1881.

Application filed May 3, 1881. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM S. BRIGGS, a citizen of the United States of America, residing at South Chester, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Rolling-Mill Appliances; 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 or figures of reference marked thereon, which form a part of this specification.

This invention relates to a mechanism for receiving sheets of iron after they have been passed between rolls, and for elevating and automatically transferring the iron back to the front side of the rolls.

Figure 1 is a top-plan view of a mechanism embodying my improvements. Fig. 2 is a side view of the same, showing the parts in the positions occupied by them when the iron is being received from the rolls, and showing also a driving mechanism. Fig. 3 is a perspective of the machine. Fig. 4 is a section of the apron, showing also a rear view of the sliding carriage. Fig. 5 shows a driving mechanism that may be used.

In the drawings, A A represent a pair of rolls, which may be of the ordinary or of any preferred character. Behind the rolls is arranged the apron, which is composed of parallel bars arranged edgewise. The rails of the apron are firmly joined together by means of one or more cross-bars, C.

The apron can be raised and lowered by a stirrup or bail, E, hinged to the apron at the front end, and carrying a rope or chain passing over a pulley above, though other mechanism for raising and lowering the front end of the apron may be employed, if desired.

Upon the apron there is mounted a sliding carriage consisting of a longer cross-bar, F, and the shorter cross-bar G, somewhat in front of the former, the two cross-bars being connected by suitable arms.

g g are lugs or ears projecting upwardly from the cross-bar G, and in these lugs or ears is

pivoted a rocking bar or shaft, I, carrying arms *i i*, projecting from one side of the bar, and one or more arms, *i'*, projecting from the bar at right angles, substantially, to the arms *i i*. By means of the bar I and the arms *i* and *i'* the receiving, stopping, and delivery of the iron can be readily facilitated.

K K are anti-friction rollers, carried by the rear cross-bar, F, and arranged to bear against the outer face of the side rails of the apron, or against ribs or cleats attached to said outer face. The rear end of the sliding carriage is prevented from escaping from the apron by means of inwardly-projecting arms L L, formed either by bending downwardly and inwardly the rear cross-bar, F, or by attaching separate pieces to said cross-bar.

l is a central supplemental guide-piece projecting downwardly from the rear cross-bar, F, between the center rails of the apron, and arranged to bear against said rails, or against ribs or cleats *a* attached thereto. These last-described parts operate to hold the carriage in proper position relatively to the apron, but do not prevent the carriage from sliding freely thereon.

It will be seen that if the apron be situated relatively to the rolls in the position shown in Fig. 1, and if the carriage be at the forward end of the apron, the iron, as it escapes from the rolls, will push the carriage backward, and will rest upon the apron in front of the carriage.

It will be further seen that if the apron be elevated the iron can be passed over the top of the roll by sliding the carriage forward. This forward movement of the carriage is effected by the following mechanism:

M represents a shaft, mounted in the apron-frame at the front end, the bearings for the shaft being preferably provided by means of downwardly-projecting legs. This shaft M is connected to the sliding carriage by means of chains or ropes *b b*, which at their rear ends are attached to eyes *cc*, projecting downwardly from the sliding carriage. At the front ends the chains or ropes *b* are so attached to the shaft M that they shall be wound upon it when the shaft revolves.

N is a friction-pulley at the outer end of the

shaft M. It is arranged to engage with a friction-wheel, O, carried by a shaft, P. This shaft P is mounted in standards *p p*, and carries at the end opposite to the wheel O a loose pulley, 5 Q, and a keyed pulley, R.

S is a belt passing around a belt-wheel driven by one of the rolls, and arranged to drive the shaft P by means of the fixed wheel R. If desired, the belt may be driven directly from the 10 roll by means of a pulley carried thereby.

If the carriage be raised until the friction-pulley N engages with the friction-wheel O, power will be transmitted from the roll to the chain-shaft M, which will wind up the chains 15 or ropes *b* and draw forward the sliding carriage.

The belt is shifted from the fixed pulley to the loose pulley, and vice versa, by means of an L-shaped lever, T. This lever is pivoted 20 at *t* to the floor of the mill, and carries two projecting pins or studs, *d d*, situated by the opposite edges of the belt, so that if the lever T be turned upon the pivot the belt can be shifted laterally in either direction.

W is a spring, which acts to force backward the lower arm of lever T, and thus hold the belt upon the fixed pulley R, the backward 25 movement of the lever being limited by means of a stop, *w*.

V is a tripping-arm projecting downwardly from the sliding carriage, and so situated that as the carriage moves forward the tripping-arm engages with the end of the L-shaped lever T, turns it upon its pivot, and thus shifts 30 the belt from the fixed pulley to the loose one. This, as will be readily understood, stops the shafts P and M, and therefore stops the sliding carriage. After the iron has been trans-

ferred to the front side of the rolls the apron is lowered for another load of iron, which, as 40 it is received, thrusts the carriage back, as above described, and the tripping-arm is consequently disengaged from the lever T, whereupon the spring W turns the lever and shifts the belt to the fixed pulley again, and the 45 wheel O is put into rotation, to be ready for another engagement with the pulley M.

What I claim is—

1. In a machine for transferring iron from one side of the rolls to the other, the combination, with the rising and falling apron, the sliding carriage thereon, and the advancing mechanism, of the belt-shifting devices and the tripper carried by the sliding carriage, substantially as set forth. 55

2. The combination of the hinged apron, the sliding carriage thereon, the devices which prevent the carriage from being lifted from the apron, and the anti-friction rollers K K, mounted on vertical axes and arranged to bear against 60 the vertical sides of the apron, as set forth.

3. The combination, with a rising and falling apron and the rolls, of the shaft M, mounted upon the apron, the supplemental shaft P, the friction-wheel O on shaft P, and the friction-pulley N on shaft M, adapted to be raised 65 into engagement with the wheel O and to be disengaged therefrom by lowering it, substantially as set forth.

In testimony whereof I affix my signature 70 in presence of two witnesses.

WILLIAM STEVENS BRIGGS.

Witnesses:

R. BRADLEY,
J. M. ALLEN.