

C. A. MERRILL.

GANG EDGER.

No. 333,882.

Patented Jan. 5, 1886.

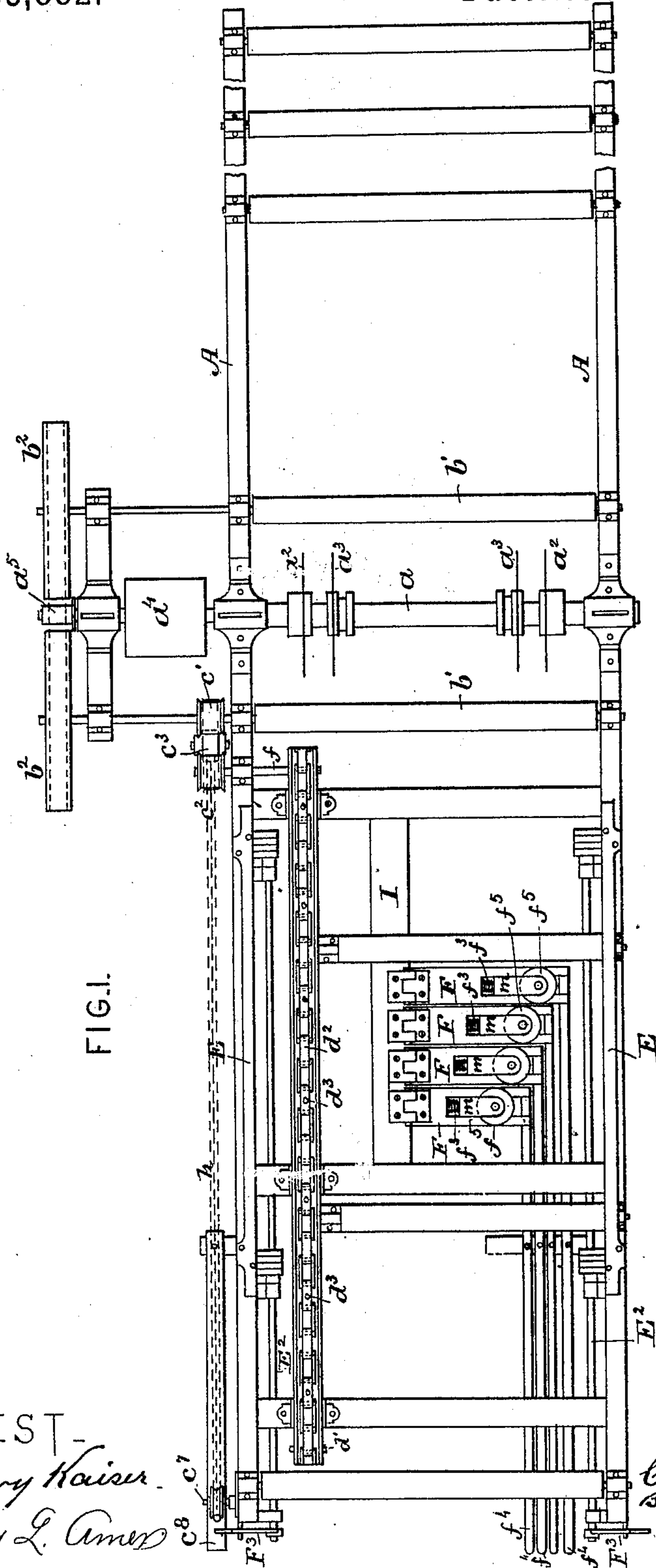


FIG. 1.

ATTEST—
J. Henry Kaiser.
Harry L. Ames

INVENTOR.
Charles A. Merrill
By J. N. McIntire
Atty.

C. A. MERRILL.

GANG EDGER.

No. 333,882.

Patented Jan. 5, 1886.

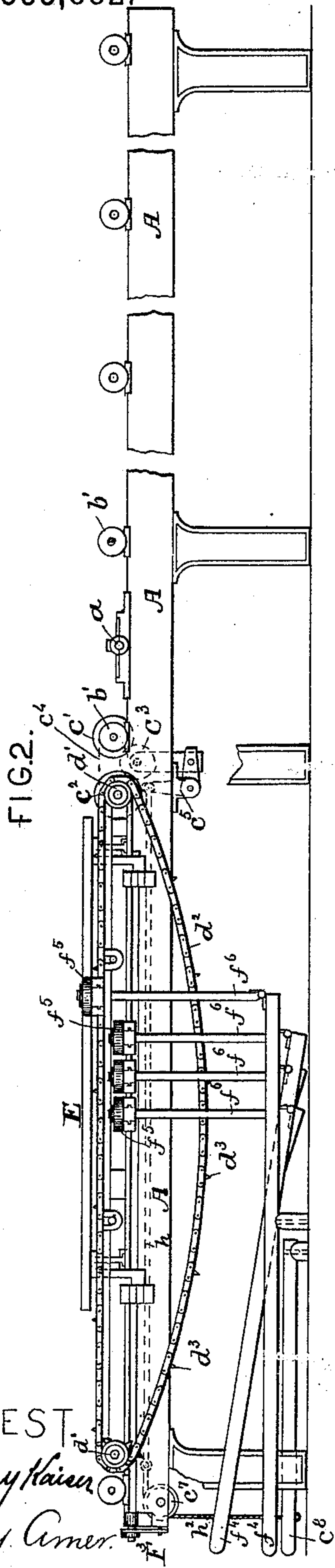


FIG. 2.

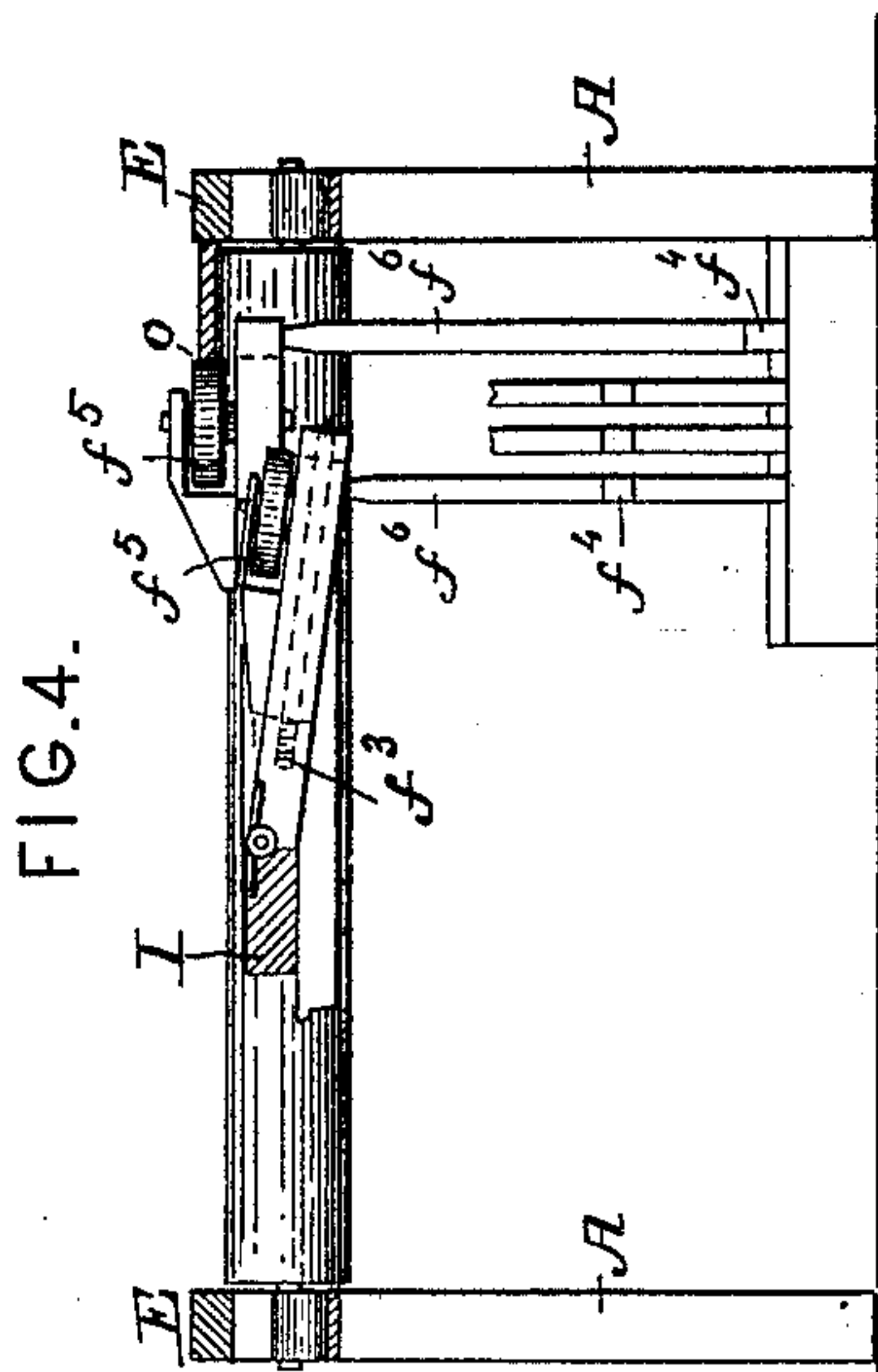
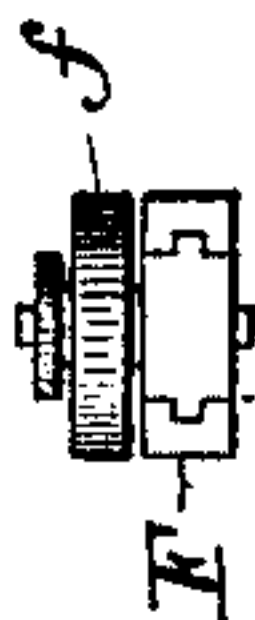


FIG. 4.

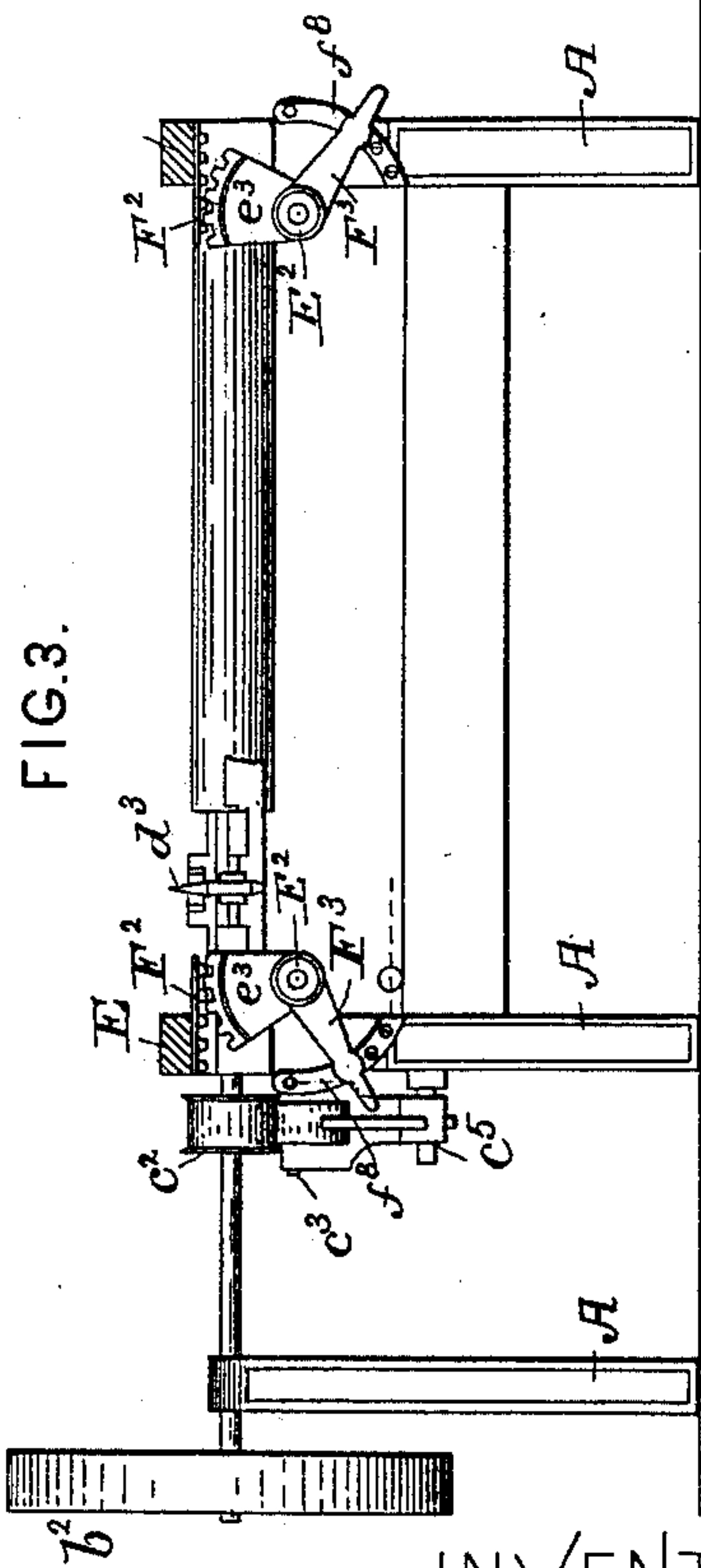


FIG. 3.

ATTEST.
J. Henry Kaiser
Harry Amer.

INVENTOR.
Charles A. Merrill
By J. N. McIntire
ATTY.

(No Model.)

3 Sheets—Sheet 3.

C. A. MERRILL.

GANG EDGER.

No. 333,882.

Patented Jan. 5, 1886.

FIG. 6.

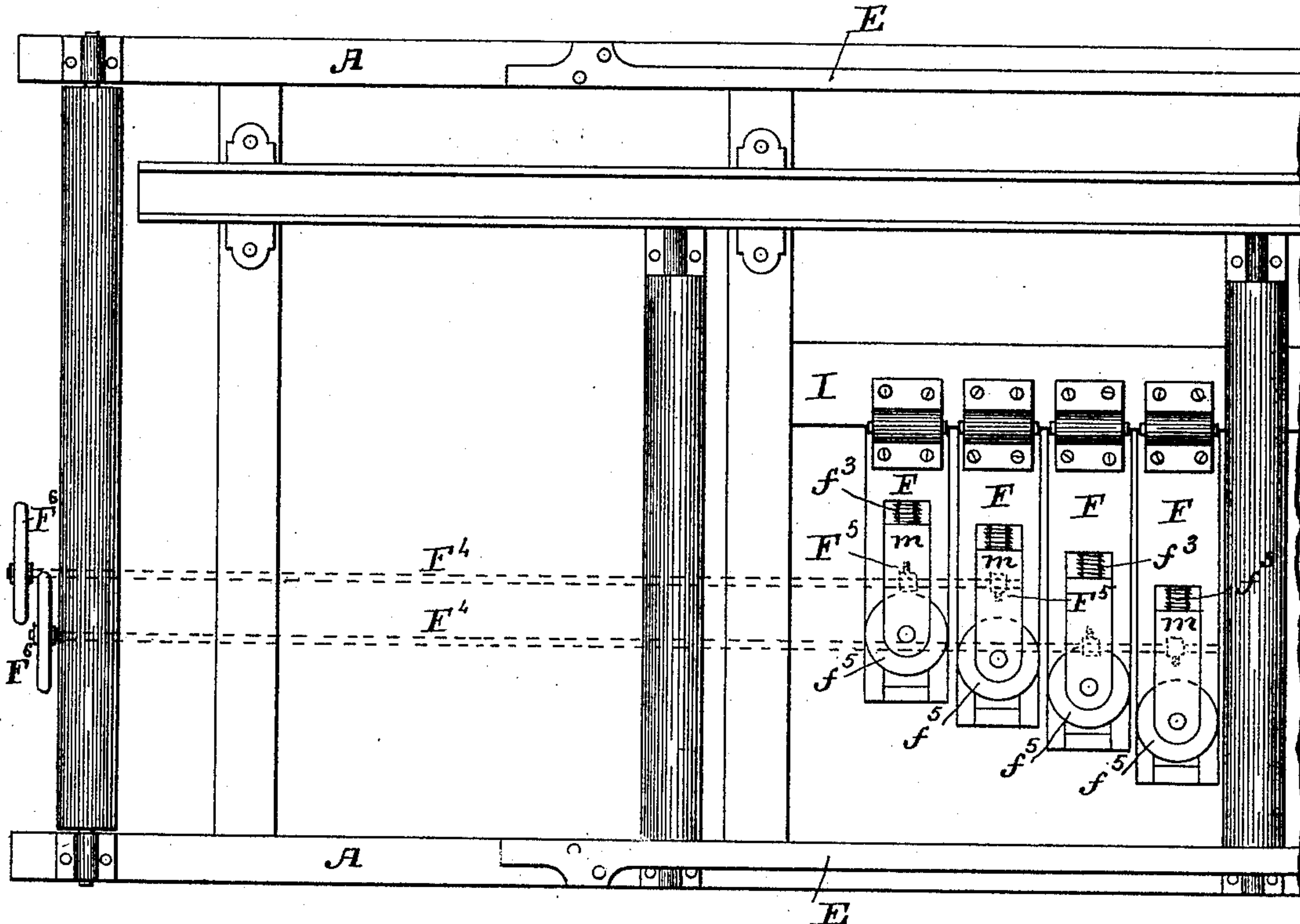
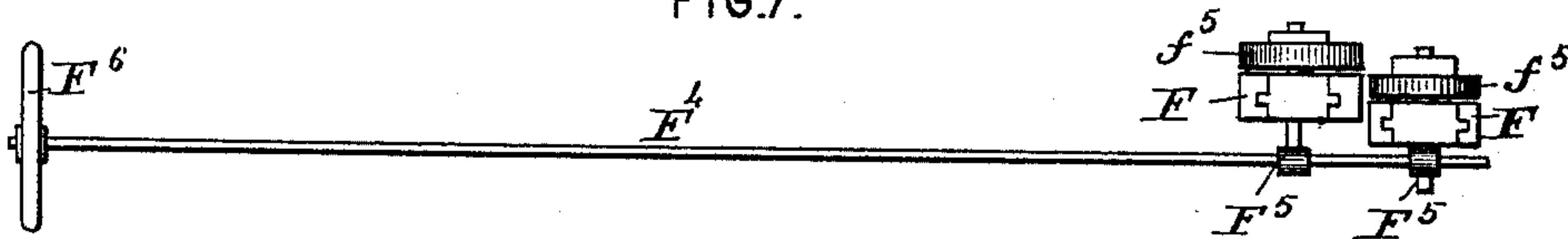


FIG. 7.



ATTEST-
J. Henry Kaiser.
Harry L. Amer.

INVENTOR.
Charles A. Merrill
By J. N. McIntire
Att'y.

UNITED STATES PATENT OFFICE.

CHARLES A. MERRILL, OF BAY CITY, MICHIGAN, ASSIGNOR OF ONE-HALF
TO MICHAEL GARLAND, OF SAME PLACE.

GANG-EDGER.

SPECIFICATION forming part of Letters Patent No. 333,882, dated January 5, 1886.

Application filed September 29, 1885. Serial No. 178,540. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. MERRILL, of Bay City, in the county of Bay and State of Michigan, have invented certain new and
5 useful Improvements in Gang-Edgers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

10 My invention relates to certain new and useful improvements on gang-edgers, and has for its main objects a novel and desirable means for feeding the lumber to the saws; also, for guiding or holding in place during its
15 passage to the saws all straight-edge lumber designed to be ripped up; also, for positively and conveniently adjusting or manipulating the edge-guides of the machine.

To these main ends and objects my invention consists in the several novel devices and combinations of devices which will be found hereinafter more fully explained, and which will be most particularly pointed out and defined in the claims of this specification.

25 To enable those skilled in the art to which my invention relates to make and use my improved contrivance, I will now proceed to more fully describe it, referring by letters to the accompanying drawings, which form part
30 of this specification, and in which I have shown my invention or improvements carried out in that form in which I have so far contemplated using the same, and which is the best now known to me.

35 In the drawings, Figure 1 is a top view of a machine embodying my invention. Fig 2 is a side view of the same. Fig. 3 is a front end view. Fig. 4 is a vertical section taken at the line $x x$ of Fig. 1, and Fig. 5 is a detail
40 view of one of the roller-frames. At Figs. 6 and 7 I have illustrated a modification as to one feature of the invention.

In the several figures in the drawings the same part will be found designated by the
45 same letters of reference.

A represents the main frame-work of a double gang-edger, preferably of the form or type known as the "Garland Double Gang-Edger," for certain improvements on which
50 an application for Letters Patent is now pending in the United States Patent Office.

Near the middle of the main frame-work, longitudinally, is located the usual saw-shaft, a , on which are mounted the stationary saws $a^1 a^2$ and the movable saws $a^3 a^4$, and which is
55 provided with a drive-pulley, a^5 , and at its outer extremity with a small pulley, a^6 , which, through the medium of a suitable belt, operates the pulleys $b^1 b^2$ of the lower feed-rolls, b' .

On the shaft of one of the lower feed-rolls, b' , is made fast the pulley c' , and on a short shaft or spindle, f , mounted in suitable bearings in the main frame A, is mounted another pulley, c^2 , the said pulleys $c' c^2$ being banded
65 together by a drive-belt which is thrown into and out of an operative condition by means of a tightener, c^3 , which is operated by a mechanism to be presently described.

On the inner end of the short shaft f is mounted a chain-wheel, over which and a similar chain-wheel, d' , mounted in suitable bearings near the front end of the main frame, passes an endless chain, d^2 , some of the links of which, d^3 , are formed or provided, as shown, with upwardly-projecting carrier devices in
75 the form of sharp-pointed lugs or spurs, that are adapted to engage with the under side of the lumber to be fed in, and to carry the lumber along toward the saws. This carrier-chain or chain feeding device travels in a suitable
80 trough-like rest or guideway, and relative to which it is so arranged that the spurs or carrier-points d^3 of the chain project above the guideway in which the chain travels.

E is the edge-guide of the machine, which
85 is adjusted laterally and which is moved at both ends simultaneously and equally by means of racks F^1 on its under surface, the teeth of which engage with toothed sectors e^3 , mounted fast on a rock-shaft, E^2 , which is
90 moved and controlled by the operator through the medium of a handle, F^3 , at the forward end of the machine. This handle is made, preferably, with a projecting lug or pin which may be sprung into any one of several holes
95 in the index-plate f^3 , for the purpose of setting the edge-guide and holding it at various points for cutting the lumber into strips of various widths.

The tightener, before referred to, by means
100 of which the shaft f , and thus the lumber-feeding chain device, is thrown into and out of op-

eration, is operated by means of an angle-lever, c^5 , mounted on a suitable shaft or stud having fixed bearings on the main frame A, as clearly shown at Fig. 2, the lower end of which angle-lever is pivoted to the stand which carries the tightener c^3 at its upper end, and the upper end of which angle-lever is pivoted, as shown, to one end of a rod or pitman, a , the other end of which is fastened to a rope or chain, h^2 , that passes over an idler or shaft, c^7 , and is fastened at its lowermost end to a treadle or foot-lever, c^8 . By depressing the forward end of said treadle c^8 , the rope or other flexible connection, h^2 , will be caused to pull longitudinally on a connecting-rod, h , and thus oscillate the angle-lever c^5 in a proper direction, and to the requisite extent to throw up the tightener c^3 and put the pulley c^2 (which is banded to c^1 by the loose belt c^4) into operation, and when thus in operation the chain feeding device f^5 is driven in the proper direction and at the proper speed. When the foot-lever c^8 has been released from pressure, the stand carrying the tightener c^3 will descend sufficiently by gravity or, being released from upward pressure, will cease to hold the belt c^4 sufficiently taut to affect the driving of the chain-wheel shaft f . If desired, of course a hand-lever might be substituted for the treadle c^8 , and any suitable means might be employed for locking and holding the lever in either one or the other of its designed positions.

In the use of such chain feeding device, as shown, the lumber simply has its leading end properly placed on the machine with one edge against the edge-guide E, and with its under surface resting on one or more of the carrier spurs or points d^3 , when, by throwing up the tightener c^3 , so as to set the chain-feed into operation, the lumber will be carried along with one edge in perfect contact with the edge-guide E until the leading end of the lumber shall have passed into the bite of the rear lower feed-roll, b' , after which the chain feeding device may be released from its driving mechanism, and will be moved by the forward movement of the lumber resting thereon, while at the same time it will continue to act as a liner to hold and keep the rear portion of the lumber in place and properly up against the edge-guide E.

At F are represented a series of roller-frames, in the end of each of which is mounted on a suitable axis an edge-roller, f^5 . Each of these roller-frames is of a different length, so that the four rollers f^5 (see Figs. 1 and 4) are so located as to be adapted to come into contact with the straight edge of a piece of lumber of a different width from that adapted to be operated upon by any other one of the rollers, assuming the edge-guide E to be in a given position, and each of said rollers f^5 has its vertical axis mounted in a bar or frame, m , which is adapted to move to a certain degree longitudinally—that is, horizontally—within

its frame F, said sliding or movable device m having arranged in rear of it a spiral or other spring, f^3 , the function of which is to keep said device m and the roller f^5 always up against the edge of the lumber being operated upon, but with a yielding pressure, so as to permit the roller f^5 to conform to any irregularities there may be in the edge of the lumber being operated upon. Each of the roller-frames F is hinged at its rearmost end to a stationary bar or beam, I, of the machine, (see Figs. 1 and 4,) and in their condition of disuse all of the roller-frames F are down in an oblique position out of the way, but properly supported by lifter-bars f^6 , each one of which is operated upon by means of a horizontal longitudinally-arranged foot lever or bar, f^4 . (See Figs. 1 and 2.) That one of the rollers f^5 which is desired for use according to the width edged lumber to be ripped or operated by the saws of the machine is thrown up into the position indicated by the uppermost one of the two rollers, (seen at Fig. 4,) by pressing down upon that one of the foot-levers f^4 , and thus elevating that one of the lifter-bars f^6 which will elevate the frame of the roller to be used, and when said roller shall have been raised to the position indicated at Fig. 4, it will operate to hold the board (illustrated at Fig. 4 by O) edgewise up against the edge-guide E, but with an elastic or yielding pressure, all as clearly illustrated.

As will be seen by reference to Fig. 4, each one of the rollers f^5 is so hung in its frame relatively to the pintle of the hinge on which said frame turns or swings up and down that when the said roller shall be thrown up into the position shown at Fig. 4, for use, its pressure against the edge of the lumber will tend to keep the roller-frame in this elevated position and will thus retain it without the continued assistance of the lifter-bar f^6 and the foot-lever f^4 , which were necessary to elevate it to its working position. If, however, it be deemed expedient, any suitable locking device may be employed to hold the forward end of the foot-lever down and to thus positively hold the roller-frame up so long as it may be desired to use it.

Of course the details of construction may be more or less varied without departing from the principle of this part of my improvements, the gist of which rests in the use in a sawing-machine, and in connection with the edge-guide E, of one or more edge-rollers, f^5 , adapted to operate against or engage frictionally with the edge of the board, substantially in the manner shown, for the purpose of keeping the board to be ripped up against the edge-guide and capable of yielding to any inequalities or unevenness in the width of the board, the said roller or rollers being provided with some suitable means for throwing them into and out of the proper working position; and it will be understood, of course, that the chain feeding device, as shown, may be employed also

on that side of the machine where the edge-rollers are shown as also used, if it be deemed desirable to use them for the purpose of carrying the lumber along while the edge-rollers keep it in position widthwise.

By means of the toothed sectors e^3 , mounted on a rock-shaft, as described, and engaging with toothed racks F^2 near each end of the edge-guide E, I am enabled to perfectly and evenly adjust the edge-guide at pleasure, and the means therefor is rendered exceedingly simple of construction, while positive in its action.

In the construction of my machines so far I have used for the feed-chain device what is known in the market as the "Ewart Detachable Drive-Chain," some of the links of which are provided with the proper spurs or carrier devices; but of course any other endless flexible carrier provided with the necessary spurs for engagement with the underside of the lumber may be substituted for the drive-chain shown without departing from the spirit of this feature or part of my invention.

At Figs. 6 and 7 I have shown a modification of my improved machine, with reference only to that part involving the means for properly supporting and for raising and lowering the roller-frames F. Instead of the vertically-arranged lifter bars or post operated by the series of treadles or foot-levers, as shown in the other figures, and as hereinbefore explained, I employ in this modified form of my machine simply two horizontal shafts, F^4 F^4 , running longitudinally of the machine, and mounted to turn freely in suitable bearing-boxes secured to the main frame, each of which shafts is provided with two cam-like lifters, F^5 F^5 , arranged, as shown, near its inner end, and with a hand-wheel, F^6 , keyed fast to its outer end. The lifter devices F^5 of each shaft are arranged to project radially therefrom in the same plane, but in opposite directions, as shown, and the four lifters of the two shafts are located, respectively, below the four roller-frames in such manner that by turning one shaft a quarter-turn in one direction or the other, as required, one of the other of two of the roller-frames will be lifted up into the proper position for use, and by similarly turning the other shaft one or the other of the other two roller-frames

will be lifted. By means of the hand-wheels F^6 the shafts may be conveniently turned by the operator, who stands at the front end of the machine, and when either of the shafts F^4 is turned or set with its lifter devices F^5 in a horizontal position, the two roller-frames combined with said shaft will rest (in their lowermost position) upon the hub-like portions of the lifter devices.

This means of supporting and of raising and lowering the roller-frames is simple and efficient, and may be found preferable to that shown in the other figures.

Having now so fully explained the several features of my invention that those skilled in the art can practice the same, either in the form shown or under some modification thereof, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the edge-guide of a gang-edger, an endless chain or carrier provided with spurs adapted to engage with the under surface of the lumber and thereby feed or carry the lumber along in proper contact with the edge-guide, and a suitable means or mechanism for throwing said carrier contrivance into and out of operation at the pleasure of the operator of the machine.

2. In combination with the edge-guide E of a sawing-machine, a series of edge-rollers, f^2 , mounted so as to operate with a yielding or elastic pressure on the edge of the board, as specified, and means for throwing the said roller into and out of operative position, substantially as and for the purposes hereinbefore set forth.

3. In combination with the edge-guide E, an edge-roller, f^2 , mounted on a hinged frame, the hinge of which is located in a plane lower than that occupied by the roller when the latter is in its working position, and suitable means for supporting said devices, so that, as shown and described, the pressure on the periphery of said roller (while at work) will operate to hold the roller-frame f up in its working position, as hereinbefore set forth.

In witness whereof I have hereunto set my hand this 16th day of September, 1885.

CHARLES A. MERRILL.

In presence of—

HEZEKIAH M. GILLET,
 MORRIS L. COURTRIGHT.