

(No Model.)

3 Sheets—Sheet 1.

J. L. HOLTON.

SHEET METAL ROOFING MACHINE.

No. 310,824.

Patented Jan. 13, 1885.

Fig. 1.

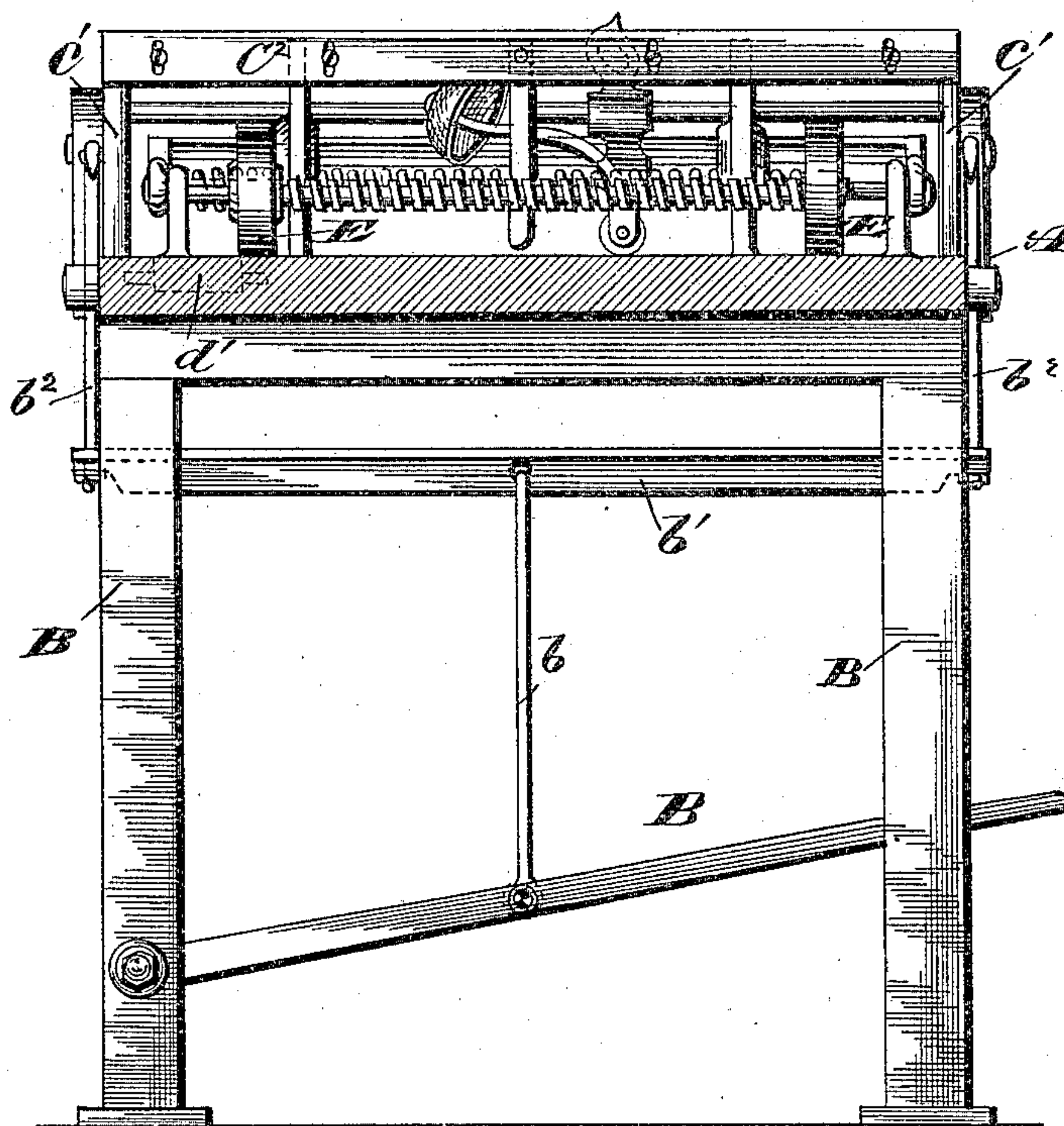
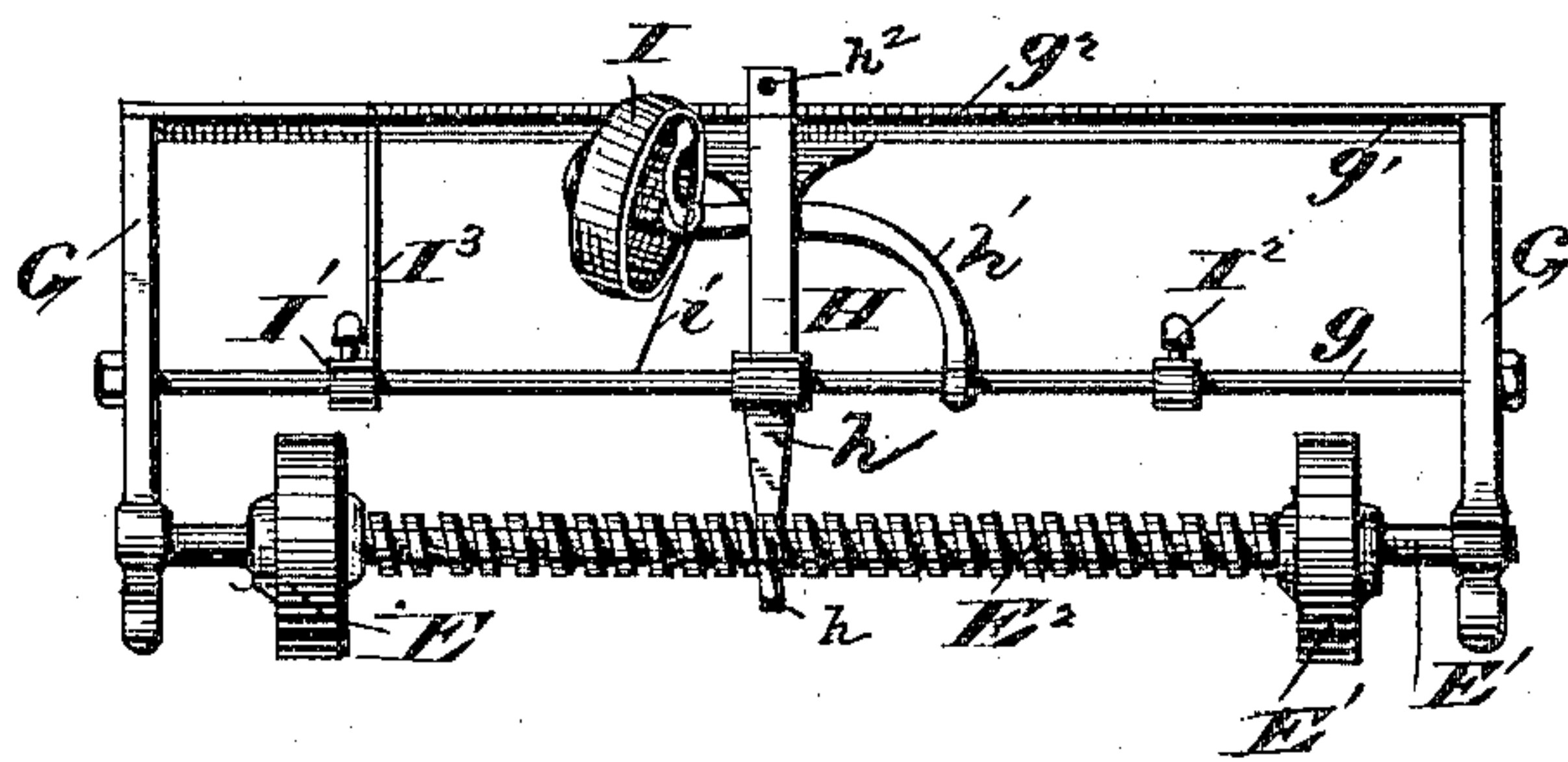


Fig. 2.



WITNESSES

Wm. McMonroe,
Geo. W. King

INVENTOR

John L. Holton
by
Leggett & Leggett,
Attorneys

(No Model.)

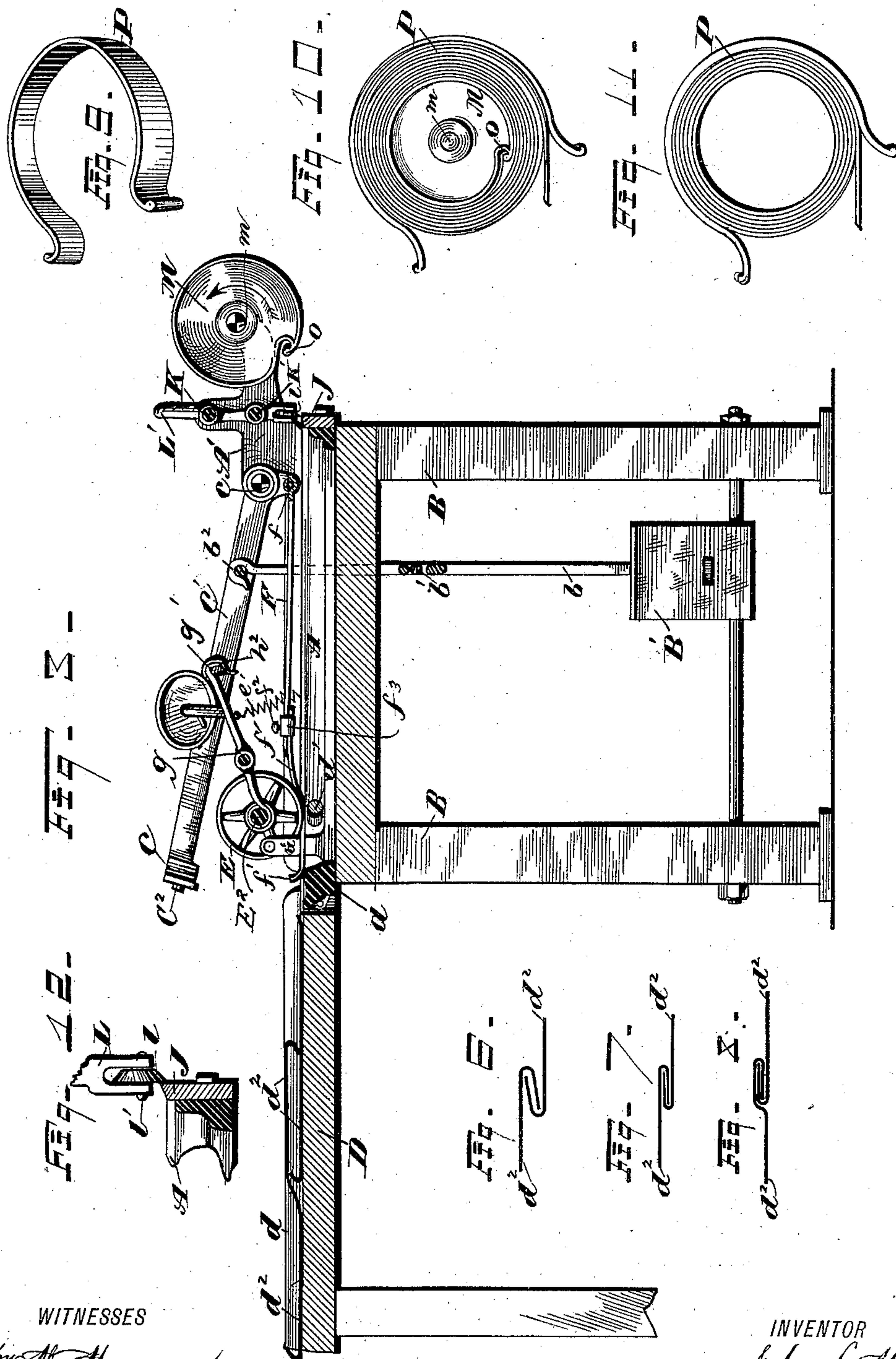
3 Sheets—Sheet 2.

J. L. HOLTON.

SHEET METAL ROOFING MACHINE.

No. 310,824.

Patented Jan. 13, 1885.



WITNESSES

Wm. A. Monroe.
Geo. W. King

INVENTOR

John L. Holton
by
Leggett & Leggett,
Attorneys

(No Model.)

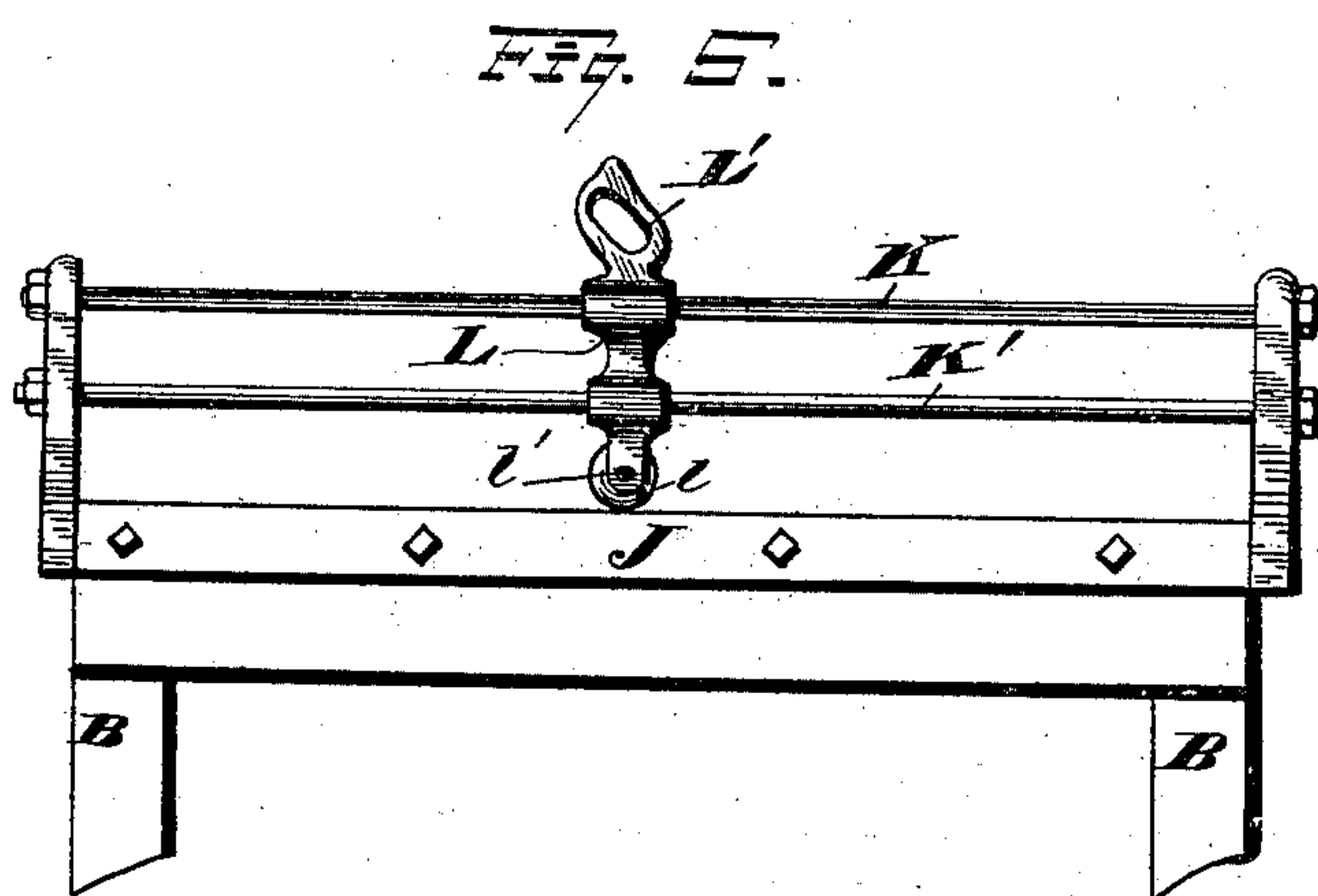
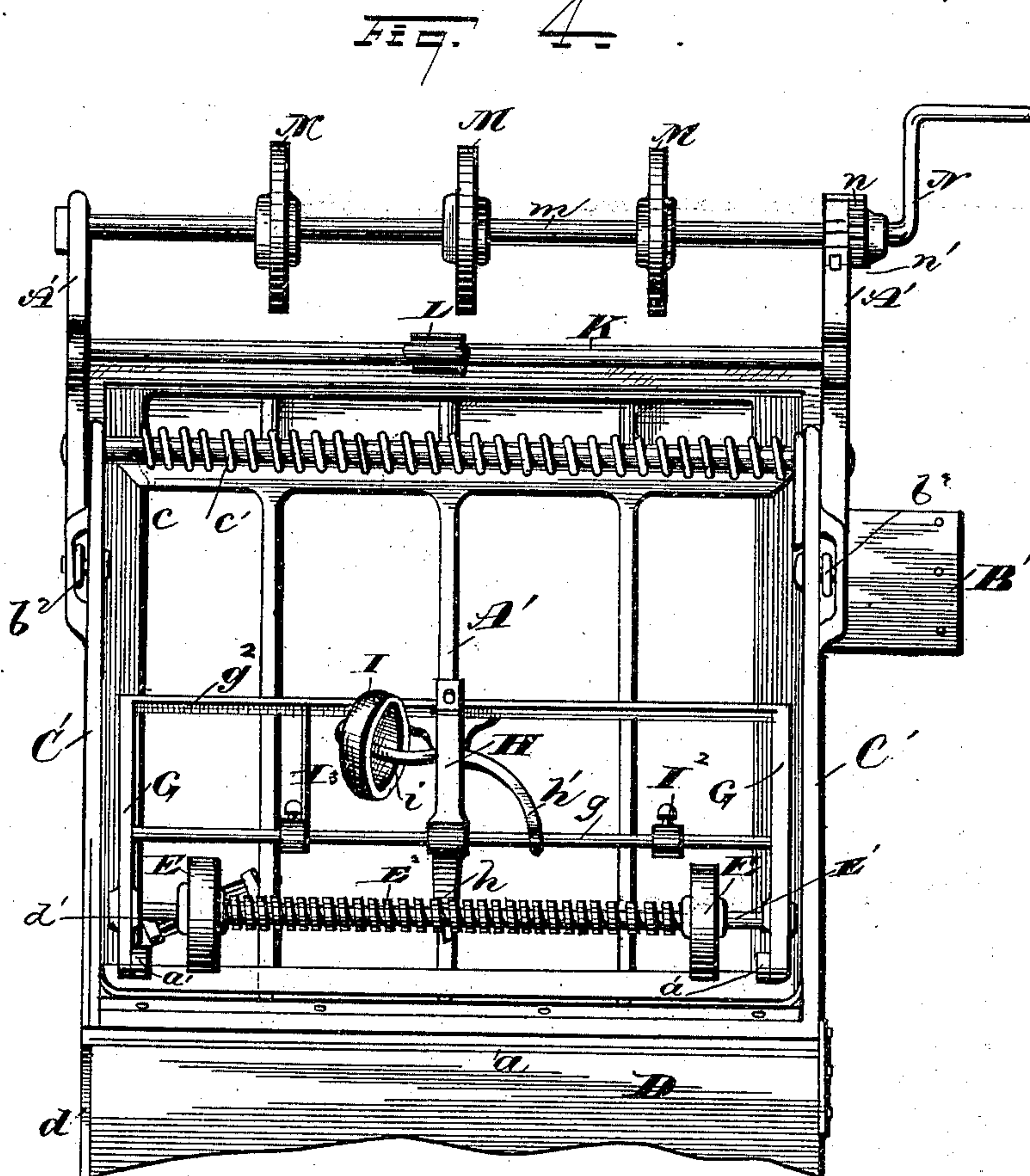
3 Sheets—Sheet 3.

J. L. HOLTON.

SHEET METAL ROOFING MACHINE.

No. 310,824.

Patented Jan. 13, 1885.



WITNESSES

Wm. H. Monroe,
Geo. W. King,

INVENTOR

John L. Holton
by Leggett & Leggett,
Attorneys

UNITED STATES PATENT OFFICE.

JOHN L. HOLTON, OF NEW LISBON, OHIO.

SHEET-METAL-ROOFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 310,824, dated January 13, 1885.

Application filed July 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. HOLTON, of New Lisbon, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Sheet-Metal-Roofing Machines; 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 pertains to make and use the same.

My invention relates to improvements in apparatus for the manufacture of sheet-metal roofing, the object being to provide a creaser on the hammer, by means of which, when the seam is flattened, the upper metal sheet will be creased down at the edge of the seam and brought in line with the lower sheet. A further object is to provide a carrying-roller set slightly oblique with the machine, by means of which the metal sheets are kept in contact with the guide, and consequently in line with the machine. A further object is to improve the stops that engage the seams and arrest the sheets when the seams are in position on the anvil by making the stops adjustable in length, to the end that seams of different widths may respectively be stopped in such position that the creaser will operate just at the rear end of the seam. A further object is to provide measuring-wheels mounted on a frame provided with a scale, sliding index, and signal-bell, and the parts so arranged and operated by the wheels that a stroke of the bell will indicate when the required length of roofing has passed through the machine. A further object is to provide a cutting device for severing the sheets when the required length has passed through the machine. A further object is to provide springs that are made to embrace the coil of roofing on the reel and hold it from unwinding while it is being removed from the reel.

With these objects in view my invention consists in certain features of construction and in combination of parts, hereinafter described, and pointed out in the claims.

My invention is designed as an improvement on a machine patented May 8, 1883, by William Painter, James L. Murrill, and Lewis R. Keizer, No. 277,332.

In the accompanying drawings, Figure 1 is

an end view in elevation of my improved machine, with parts in section. Fig. 2 is a plan view of the measuring device in detail. Fig. 3 is a side elevation, partly in section. Fig. 4 is a plan view. Fig. 5 is a side view in elevation of the cutting device in detail. Fig. 6 shows the seams locked but not flattened. Fig. 7 shows the seams flattened without creasing. Fig. 8 shows the seam flattened and creased. Fig. 9 is a view in perspective of a binding-spring. Fig. 10 shows a transverse section of the reel and coil of spring with a binding-spring in position. Fig. 11 shows the coil of roofing and binding-spring after the reel has been removed. Fig. 12 is an elevation of the shearing-wheel and a section of the shearing-plate.

A represents the bed-plate, provided with the arms A', to which are attached the hammer-frame, the cutting device, and reel, hereinafter described. The part *a* of the bed-plate forms the anvil. The bed-plate is supported on a suitable frame, B, to which is pivoted the foot-treadle B', that is connected by the rod *b* to the cross-bar *b'*, that in turn is connected by the rods *b''* to the arms C', that, together with the hammer C, form a tilting frame, and is pivoted on the rod *c*, that is secured in the arms A'. The hammer is raised by the action of the coiled spring *c'*, one end of which is secured to the rod *c* and the other end to the hammer-frame, and is drawn down to deliver a blow by means of the treadle.

D represents a long table on which the metal sheets are placed that are to be united by the ordinary seams. The forward end of the sheet is turned under and the rear end is turned over, as shown in Figs. 6 and 3. The table is provided with the upwardly-projecting rib or guide *d*, against which the edges of the sheets are placed to bring them in line with the machine. The metal sheets *d''* are kept in contact with the guide by means of the carrying-roller *d'*, that is set near the back side of the machine and slightly oblique therewith, and over which the sheets of metal pass on their way through the machine. Directly over the roller *d'* is located one of the measuring-wheels E, that press the sheet upon the former and insure its effectiveness. The sheets of metal with their ends bent as aforesaid are thrown

upon the table with the rear sheet overlapping the forward sheet, and as the latter is drawn along it engages the next sheet, as shown in Fig. 6. When the seam is over the anvil it engages the fingers F. These fingers are pivoted at f to the arms C' below the rod c , by means of which, when the hammer descends to flatten the seam, the fingers are drawn back out of the way of the hammer. The stroke of the hammer would leave the seam as shown in Fig. 7. The metal sheet on the two sides of the finished seam would be in line, and to bring them in this position I have added to the hammer the creaser C^2 . This consists of a flat steel bar secured to the front side of the hammer by screws that pass through elongated holes in the creaser, as shown in Fig. 1, by means of which the creaser may be adjusted, so that the lower edge depends below the face of the hammer, by means of which the upper sheet is creased or bent down in line with the lower sheet, as shown in Fig. 8.

For various reasons the seams on different kinds of roofing are made of different widths, and as the creasing should always be just at the rear edge of the seam I have improved the fingers F by making them adjustable in length, in order that the creaser may strike the iron on the required line, whatever may be the width of the seam. To accomplish this I make the fingers each in two pieces, F and f' , that overlap each other in the sleeve f^3 , and are secured by a set-screw, f^2 , by means of which the length of the fingers may be adjusted a short distance for the purpose aforesaid. The free ends of the fingers turn up a trifle, as shown in Fig. 3, so as to engage the edge of the seam before it is flattened, but slide over the seam without difficulty after the seam has been flattened by the hammer. The metal sheets thus joined form strips of roofing that are cut in lengths to suit the roof for which they are ordered, and some convenient measuring device is required to accomplish the work expeditiously, and I have devised the following: The wheels E are of some convenient size, usually a foot in circumference, and are secured on the shaft E' and near the respective ends thereof. This shaft is journaled in the arms G, that are pivoted to the ears a' of the bed-plate. The arms are connected by the cross-bars g and g' , so that the structure forms a rigid frame. The part g is a round rod and the part g' a flat bar. The shaft E' between the wheels has a screw, E^2 , cut thereon, the threads of which are preferably rectangular or square in cross-section, and have preferably one-quarter inch lead.

H is a sliding frame that moves on the bars g and g' , and has an arm, h , that passes under the screw E^2 and engages the bottom side thereof, so that when the screw is revolved the frame H is fed along on the cross-bars. The frame H has a brace, h' , that embraces

the rod g and holds the frame H from cramping on the bars, and has attached at the opposite ends the bell I. The frame H is pivoted on the rod g , and is held upon the flat bar g' by a spring-catch, h^2 , (see Fig. 3,) that may be loosened by the fingers and the frame tilted so that the part h is disengaged from the screw, and in this position the frame H and attachments may be slid along the rod g .

I' and I^2 are stops on the cross-bar g , and may be slid along and secured at any desired point, and are provided with set-screws for securing them. The stop I' has an arm, I^3 , that extends across to the bar g' , and forms an index or pointer for the scale g^2 , that is marked on the bar g' . The spring-hammer wire i depends far enough to engage the arm I^3 , and rings the bell as they come in contact. The bar g' has a scale marked in quarter-inches to correspond with the threads of the screw E^2 , and with the relation of parts just described represent feet that the wheels E travel. The stop I^2 in front is used to adjust the frame H to the commencement of the scale.

In operating the device the roofing is drawn through the machine by hand until the end is at the cutting device hereinafter described. The frame H is placed on the front side at the commencement of the scale, and the stop I' is set at a point on the scale that indicates the required length of roofing. As the roofing passes through the machine it revolves the rollers E, every revolution of which, by means of the screw and point h , moves the frame H along the scale until the bell is sounded. The sheet is then severed, and the remainder of the metal is in position to commence another measurement. The catch h' is loosened and the frame H is tilted and slid in front to the place of beginning. A spiral spring, e' , may be attached to the free end of one of the arms G and to the bed-plate, to prevent the frame from jumping when the wheels E pass over the seam.

The cutting device is as follows:

J is a bar of steel set edgewise and secured to the rear end of the machine, with the top edge slightly beveled, the high edge being at the rear.

K and K' are parallel bars secured to the arms A' , and on which slides the frame L. The frame at the lower end is slotted, and has a roller, l , pivoted on the pin l' , that passes through the slot of the frame L. The roller l and the bar J, with the beveled edges in contact, operate as shears, that as the frame L is slid along by the handle L' severs the metal sheet square with the machine. After the sheet is severed the frame L is drawn to the front side and out of the way of the next sheet.

M are metal disks mounted on the shaft m , that is journaled in notches in the arms A' , and so arranged that the shaft and attached disks may be lifted from the machine. The shaft m is provided with the crank N, and the ratchet n , the teeth of which are engaged by

the pawl n' , that is pivoted to the arm A' . The disks and shaft form a reel on which the strips of roofing are wound, and the pawl engages the ratchet in the direction that prevents the sheets from unwinding. The disks M have notches O , into which the end of the metal sheet is inserted, and as the disks are revolved by means of the crank the sheets are cramped in the notches and drawn alone through the machine and coiled on the disks or reel. A stroke of the bell will indicate when a sufficient length of the roofing is wound on the reel, and the engagement of the pawl with the ratchet will prevent the reel from turning backward.

P are flat springs, shaped as shown in Fig. 9, (and two or more of these springs are placed upon the coil, as shown in Fig. 10,) to prevent the coil from unwinding, after which the roofing is severed, as aforesaid. Next the reel, with the coil of roofing and the springs P in position, is removed from the machine, and another reel is placed in the machine. The reel just removed is tilted to an upright position on its rear end, in which position the reel is easily drawn upward and removed from the coil, the springs P still holding the coil from unwinding. (See Fig. 11.) Next the coil may be wrapped or secured in any desired manner for shipment and the springs removed.

What I claim is—

1. In a machine for the manufacture of sheet-metal roofing, a creaser consisting of a metal bar attached to or connected with the hammer and depending below the face of the hammer, substantially as set forth.

2. A creaser consisting of a metal bar adjustably secured to the hammer, and so ar-

ranged that the edge thereof will more or less depend below the face of the hammer, and adapted to crease the upper sheet of roofing at the edge of the seam and to bring it in line with the lower sheet, substantially as set forth.

3. In a machine for the manufacture of sheet-metal roofing, a carrying-roller set obliquely with the machine, with the lead of the roller in the direction that will keep the metal sheets in contact with the guide, substantially as set forth.

4. In a machine for the manufacture of sheet-metal roofing, gaging-fingers pivotally attached to the hammer-frame, so that the fingers are drawn back when a stroke of the hammer is given and made adjustable in length, substantially as set forth.

5. The measuring-rollers E , mounted on the rod E' , provided with the screw E^2 , in combination with a sliding frame actuated by said screw, and a scale to indicate the distance the measuring-wheels travel over the work, and a signal-bell to give notice when the required length of roofing has passed a given point, and the parts arranged and operated substantially as set forth.

6. In a machine for the manufacture of sheet-metal roofing, a device for severing the metal sheets, consisting, essentially, of the bar or blade, a sliding frame provided with a beveled wheel, arranged and operated substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 17th day of July, 1884.

JOHN L. HOLTON.

Witnesses:

R. B. PRITCHARD,
F. P. MOORE.