

(No Model.)

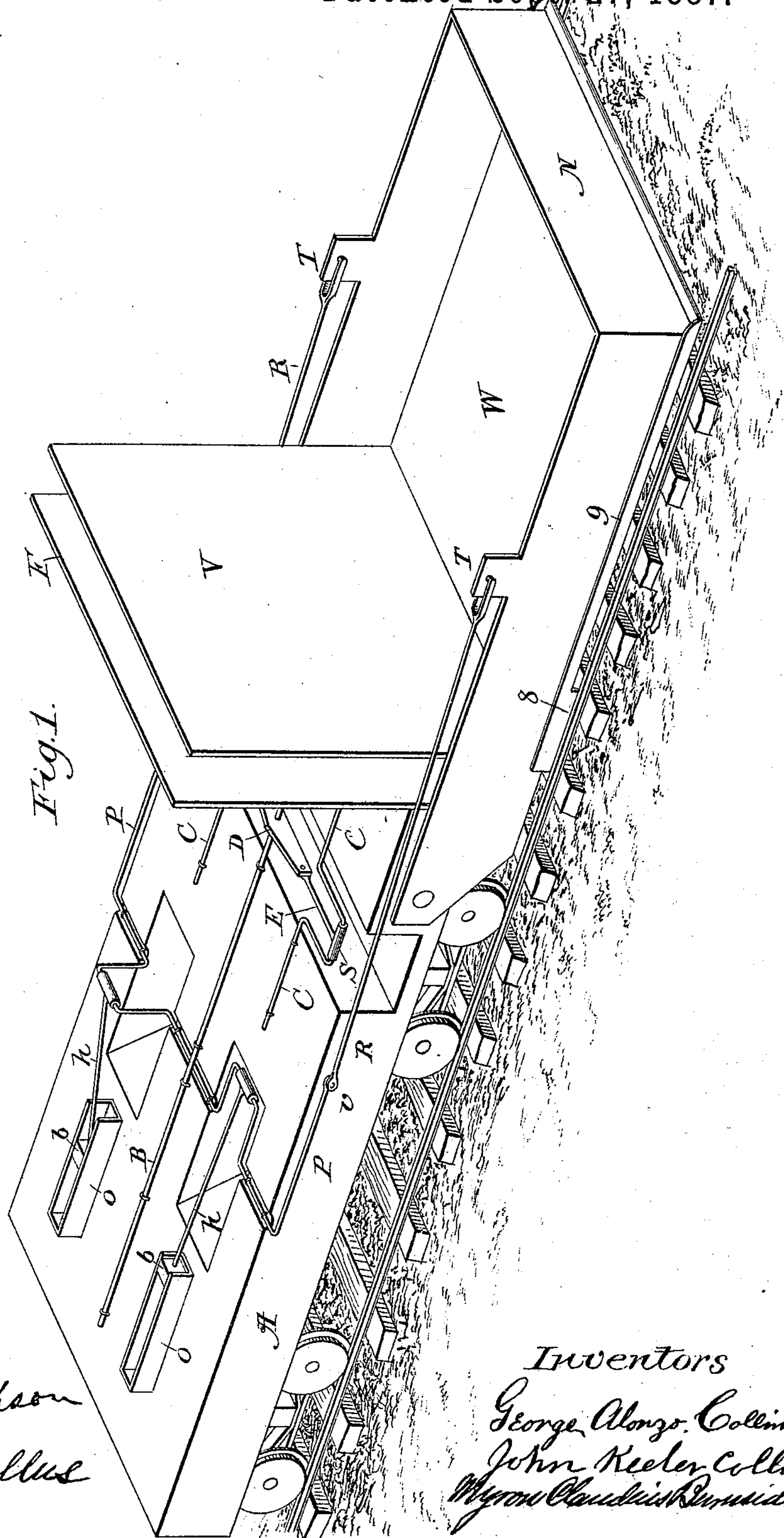
3 Sheets—Sheet 1.

G. A. & J. K. COLLINS & M. C. BURNSIDE.

EXCAVATING SNOW SHOVEL.

No. 370,377.

Patented Sept. 27, 1887.



Witnesses:
J. M. Thompson
T. M. Morrell

Inventors
George Alonzo Collins
John Keeler Collins
Myron Claudius Burnside

(No Model.)

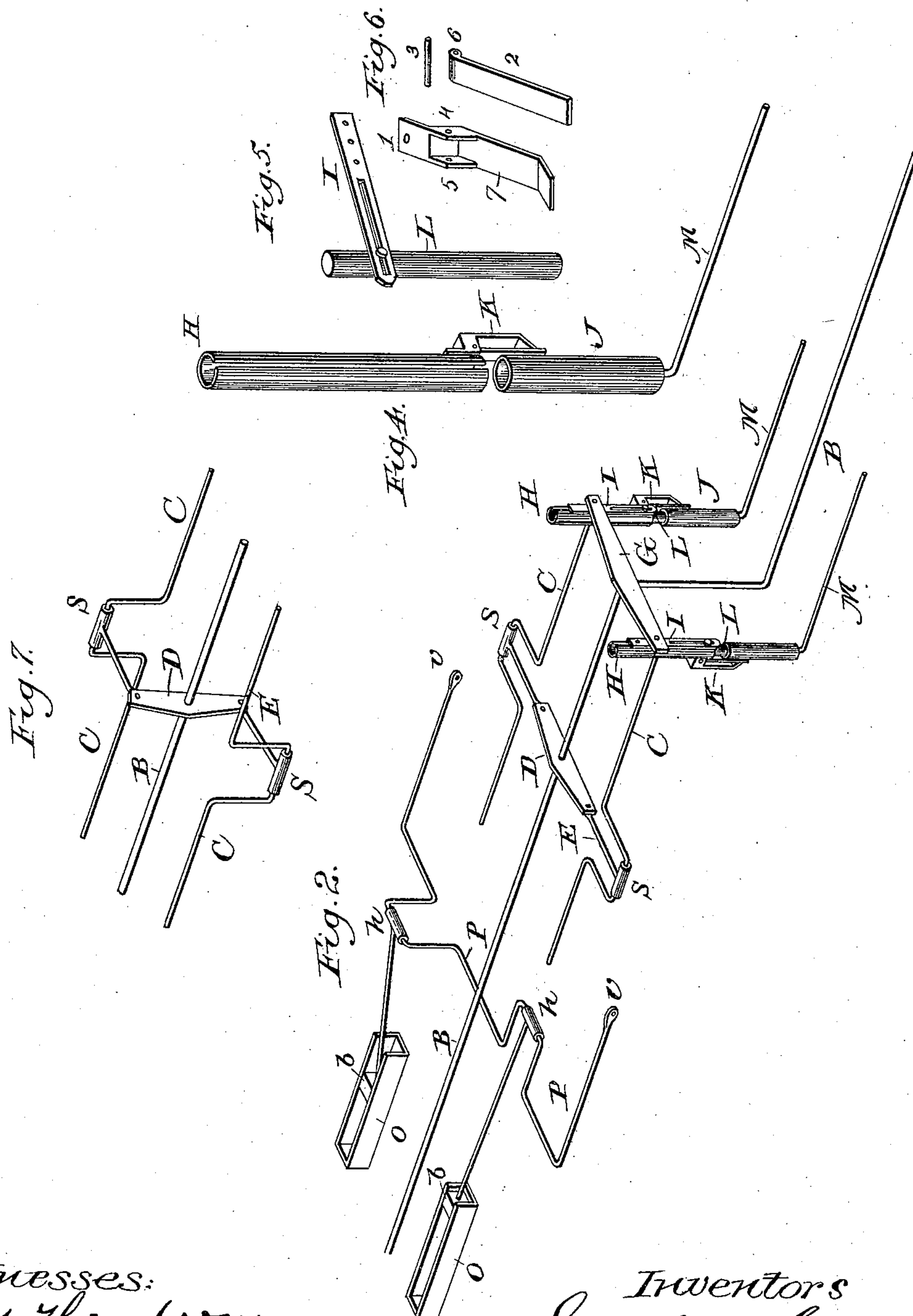
3 Sheets—Sheet 2.

G. A. & J. K. COLLINS & M. C. BURNSIDE.

EXCAVATING SNOW SHOVEL.

No. 370,377.

Patented Sept. 27, 1887.



Witnesses:
J. M. Thompson
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George Alonzo Collins
John Keller Collins
Myron Claudius Burnside

(No Model.)

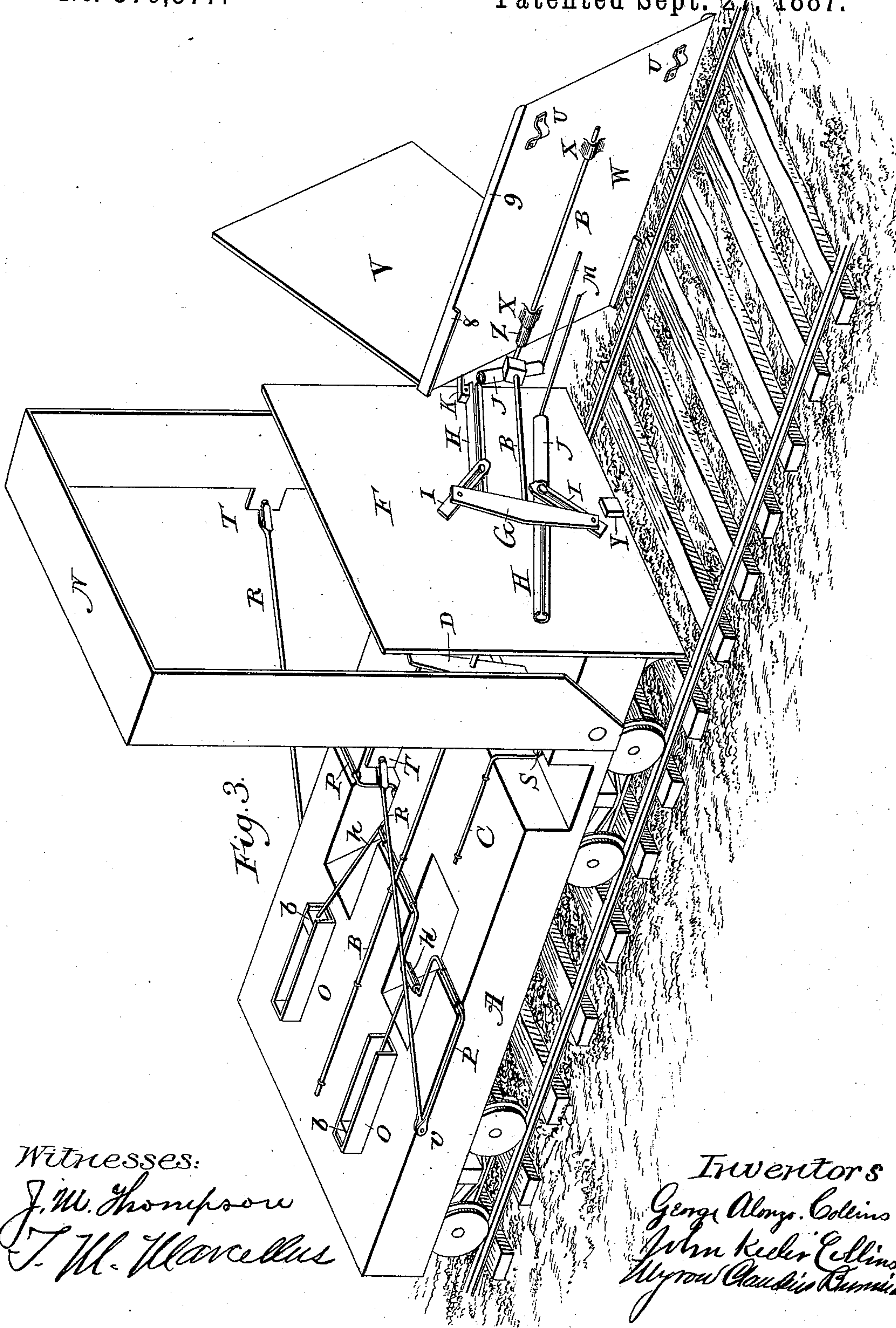
3 Sheets—Sheet 3.

G. A. & J. K. COLLINS & M. C. BURNSIDE.

EXCAVATING SNOW SHOVEL.

No. 370,377.

Patented Sept. 27, 1887.



Witnesses:
J. M. Thompson
T. M. Maxwell

Inventors
George Almy Collins
John Keller Collins
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UNITED STATES PATENT OFFICE.

GEORGE ALONZO COLLINS, JOHN KEELER COLLINS, AND MYRON CLAUDIUS BURNSIDE, OF SLEEPY EYE, MINNESOTA.

EXCAVATING SNOW-SHOVEL.

SPECIFICATION forming part of Letters Patent No. 370,377, dated September 27, 1887.

Application filed March 21, 1887. Serial No. 221,792. (No model.)

To all whom it may concern:

Be it known that we, GEORGE ALONZO COLLINS, JOHN KEELER COLLINS, and MYRON CLAUDIUS BURNSIDE, citizens of the United States, and all residing at Sleepy Eye, in the county of Brown and State of Minnesota, have invented a new and useful Excavating Snow-Shovel, of which the following is a specification.

Our invention relates to excavating snow from railroad-cuts, first, by cutting the snow with the knife while the shovel is inserted in the snow; second, by removing the snow to a convenient locality, and, third, by discharging it on either side of the track. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is the complete shovel when filled. Fig. 2 represents the principle without the shovel, knife, and front, also showing the working principle of the knife. Fig. 3 shows the knife raised and the shovel in position to discharge its contents. Fig. 4 represents the hollow shafts H and J. Fig. 5 represents pin L and plate I. Fig. 6 represents hinge K in parts. Fig. 7 represents the arms D and E in position when the shovel is dumped.

Similar letters and figures refer to similar parts throughout the several views.

Letter A represents a car indispensable to the working of the shovel.

B is the main shaft, which, with the aid of the two side shafts, C C, moves and controls the shovel.

D is a horizontal arm or shaft securely fastened in the middle to the main shaft B and connected at each end to another arm, E, which also connects with each side shaft, C C, at point S, (see Fig. 2,) allowing each end of E to revolve on D and S, which compels the two side shafts, C C, to move in unison with main shaft B.

F is the front of car, extending to the bottom of the shovel. B and C C pass through this front. C connects with H on either side by securely fastening C to the back part of H. B passes down to the bottom of the front, then horizontally out and under the shovel, and is that on which the shovel turns. M passes horizontally from J. M is securely fastened

to the lower part of J (which is a continuation of C and C) under the shovel, keeping the shovel from tipping until it is raised to a certain point, and then tipping the shovel to discharge its load.

G is an arm securely fastened in the middle to the main shaft B in front of the car and extends to H on either side.

Fig. 4 represents two hollow perpendicular shafts, H and J, which are connected by a hinge, K, so as to allow J to drop, as shown in Fig. 3, H having a slot the whole length, which allows the pin in rod L to run in it.

Fig. 6 is the hinge K. No. 1 of Fig. 6 is one part of the hinge K and No. 2 is the other part, by inserting No. 6 in No. 4 and pin 3 in hole 5, which is fastened by riveting both ends of pin 3. No. 7 is back of hinge, which prevents J from swinging outward and holds it to position by aid of L. Fig. 5 is L and I. L runs in the shafts H and J, controlled by plate I. Plate I is fastened to L by a pin in L, and allows the slotted portion of I to play between the rod L and the head of the pin. I is fastened to the arm G by a pin at the end of G, allowing it to turn on L when it is drawn up by the turning of the main shaft B, raising one end of the arm G and lowering the other end until the rod L is raised to a point just past hinge K, which relieves J and permits J to fall, thereby precipitating the shovel, as shown in Fig. 3. The reverse motion of the main shaft B brings the shovel back to place; also the rod L into position in the shafts H and J. The operation to discharge the shovel acts the same on either side of the track.

N represents the knife, which is forced down through the snow by means of rod R, attached to shaft P on either side, which is turned by connecting-rod h, attached to shaft P at point p. h is fastened to cross-head b by a cross-head pin, which turns connecting-rod h. By turning shaft P backward it draws the knife to a perpendicular position, and forward presses the knife down. Rod R is fastened to the knife N at point T with a pin and to the shaft P at point v with a pin, so it will turn. The rod h turns shaft P by b running in the slide O. The knife N is fastened to the outside of car A by a bolt, allowing it to turn.

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Our invention is to have the whole propelled by a stationary steam-engine, to which the main shaft B is attached and the cross-heads *b b* by a piston-rod connecting therewith and to the stationary engine.

W represents the bottom of the shovel, V the back, and X is where the main shaft B passes through, allowing the shovel to turn on main shaft B. No. 8 on the bottom of the shovel is a projection to keep M from passing beyond the shovel. No. 9 is a narrow flange on the outer edge of the shovel to prevent snow from sliding off while the shovel is being raised to discharge its load. The nose of the shovel is to be of steel, drawn slightly down to give it sufficient draft to hold it down to the track.

Y represents bumpers attached to main shaft B and the front of the car F and back of V.

Z is a washer to keep the shovel the right distance from the main shaft B.

U U are shoes on the shovel, to run on the track and prevent the nose of the shovel from striking joints on the rails.

Fig. 7 is position of the letters there represented which belong to Fig. 3. (Not shown.)

We claim its superiority over other mechanical devices, as we obviate the excessive power and expense and danger to life attendant therewith, and prevent the accumulation of excessive heights of cuts by snow, as is the case with all other snow-plows, and no castings or cog-wheels to break.

We make no claim upon the car, for we are aware that that is not new; but

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with the shovel, of main shaft B, shafts C, cross-head and connections D E E, cross-head and connections G I I, hollow shafts H J, pins L L, and rods M M, substantially as set forth.

2. The combination, with the knife N, of the shafts P, rods R R and *h h*, and cross-heads *b b*, substantially as set forth.

3. The combination, with the shovel W, of the crank-shaft B, supporting the same and adapted to swing the said shovel for lateral dumping to either side of the track, substantially as set forth.

4. The combination of shovels mounted upon the crank-shaft B, of shaft C, having attachments, as described, adapted to govern the lateral dumping of the shovel, substantially as set forth.

5. The combination of the shovel, crank-shaft B, shafts C, the attachments M thereto, and the adjustable hinged connection between said shafts C and attachments M, substantially as set forth.

GEORGE ALONZO COLLINS.

JOHN KEELER COLLINS.

MYRON CLAUDIUS BURNSIDE.

Witnesses:

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