

(No Model.)

2 Sheets—Sheet 1.

G. CONKLING.
MAGNETIC SEPARATOR.

No. 400,746.

Patented Apr. 2, 1889.

Fig. 3.

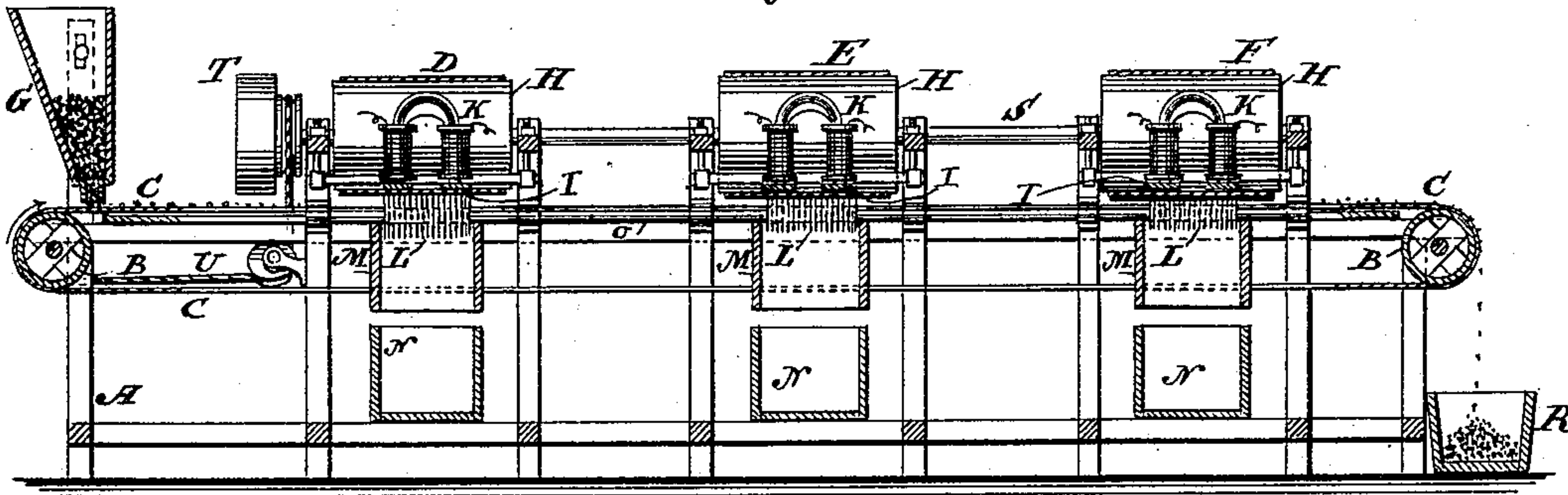


Fig. 2.

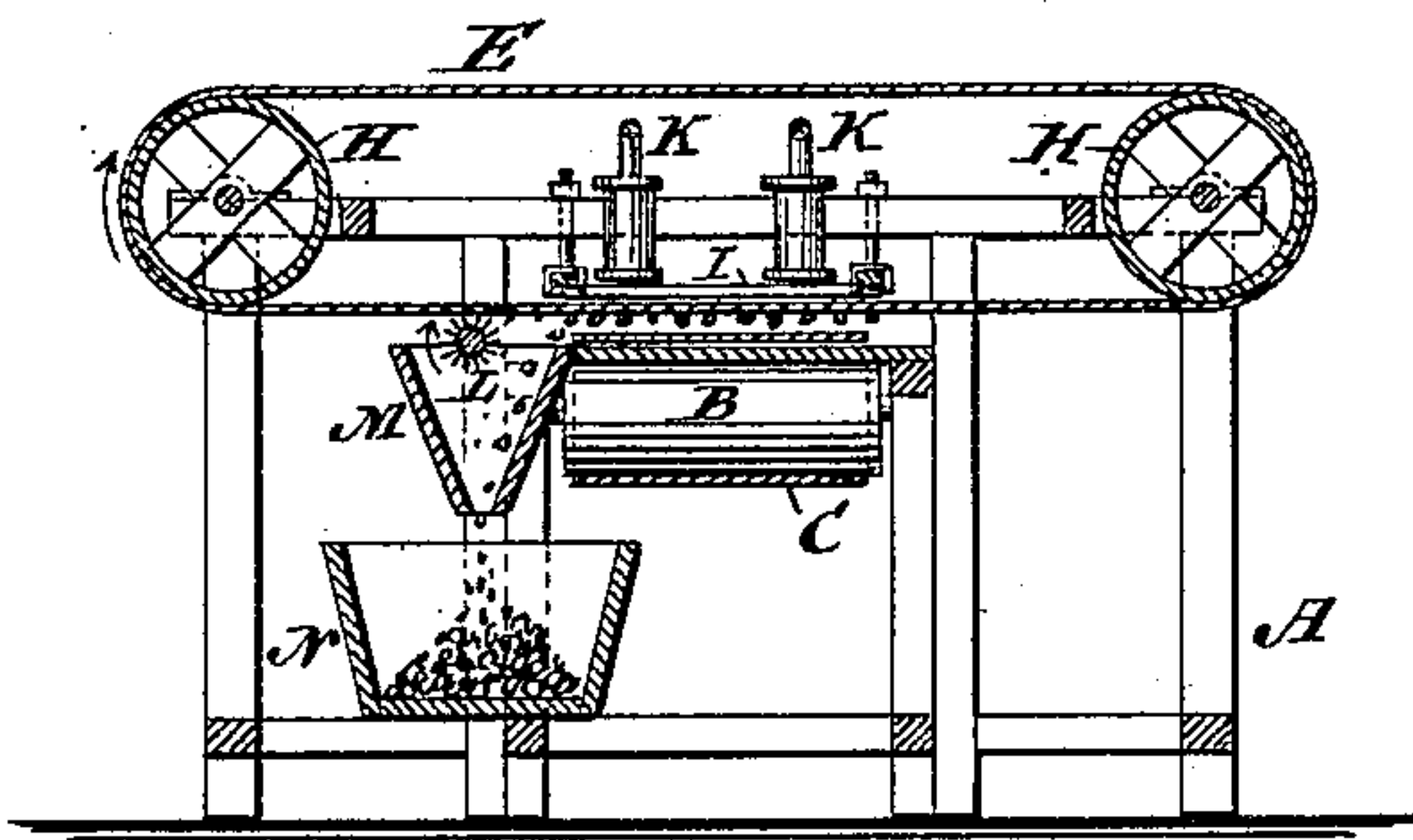
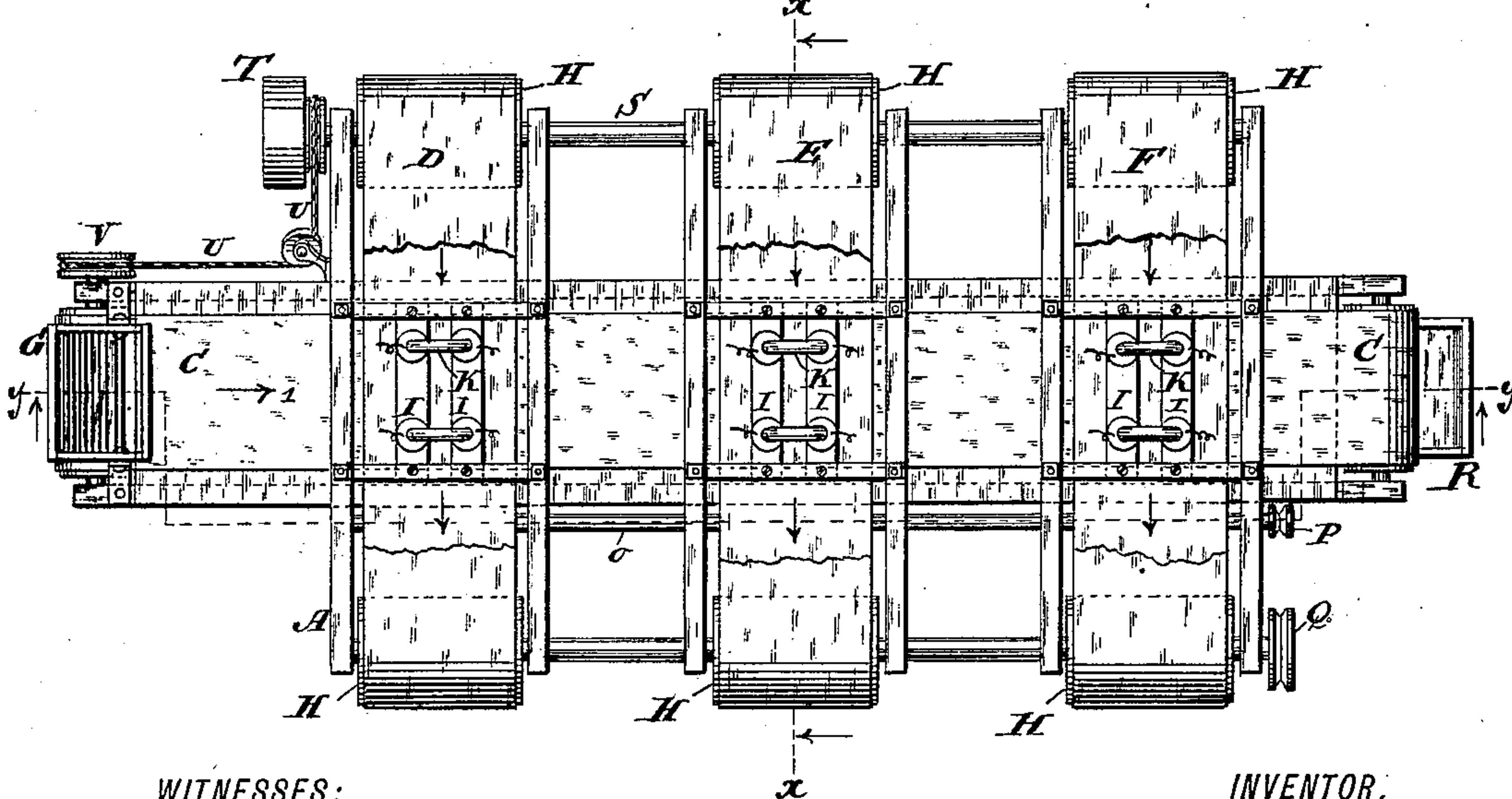


Fig. 1.



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Edward Wolff.
William Miller

INVENTOR.

Gurdon Conkling.

BY

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Fig. 6.

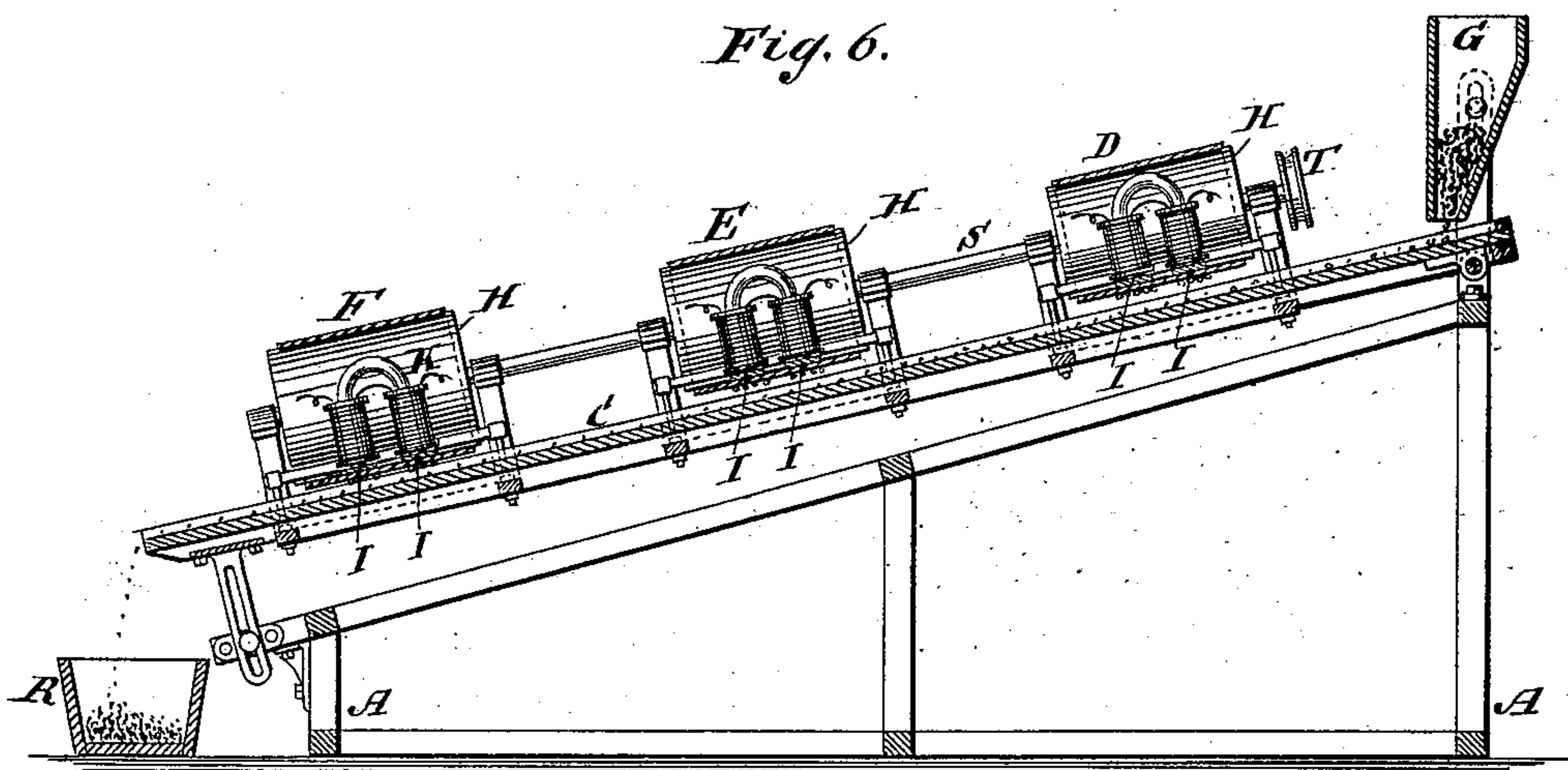


Fig. 5.

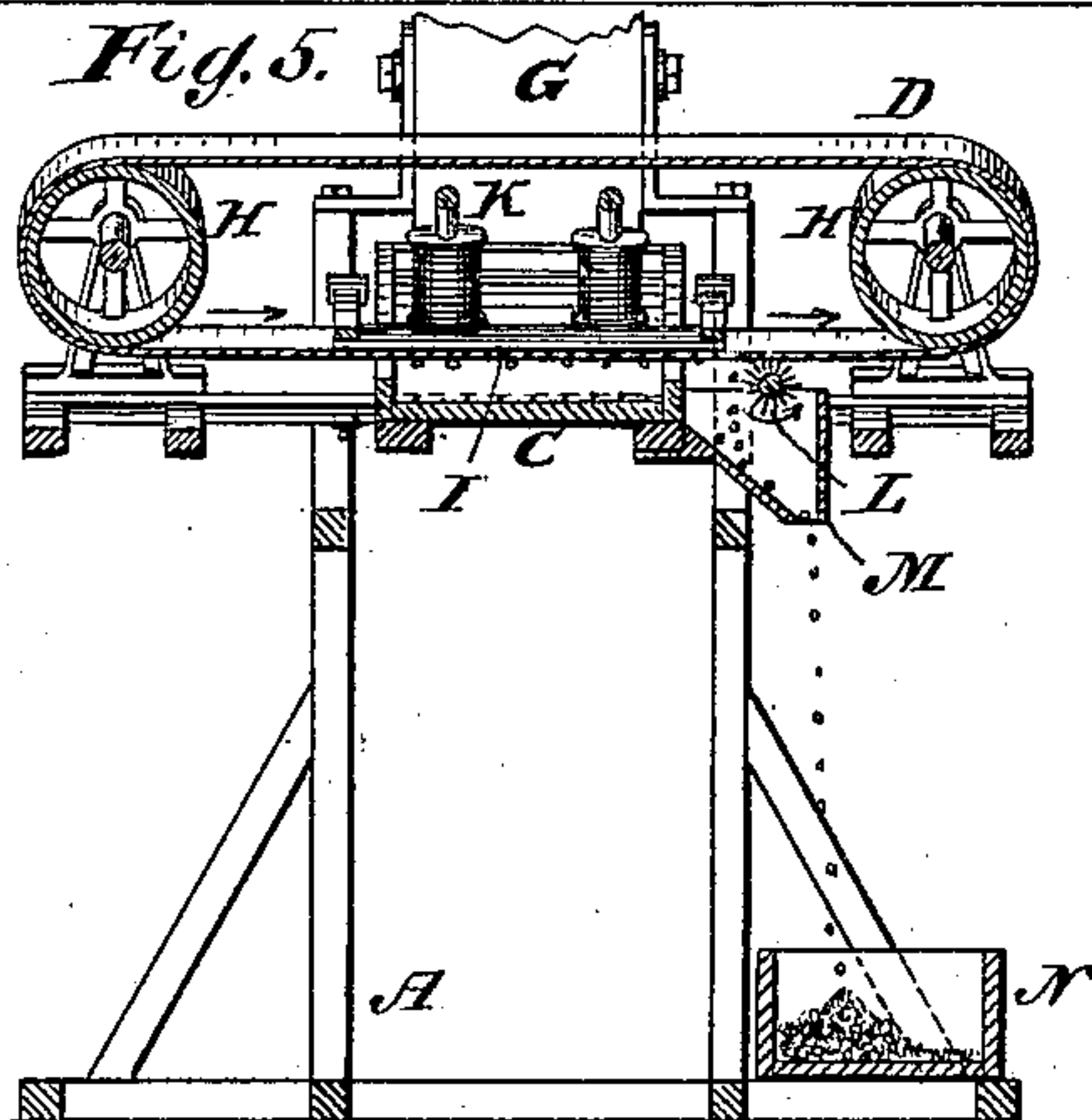
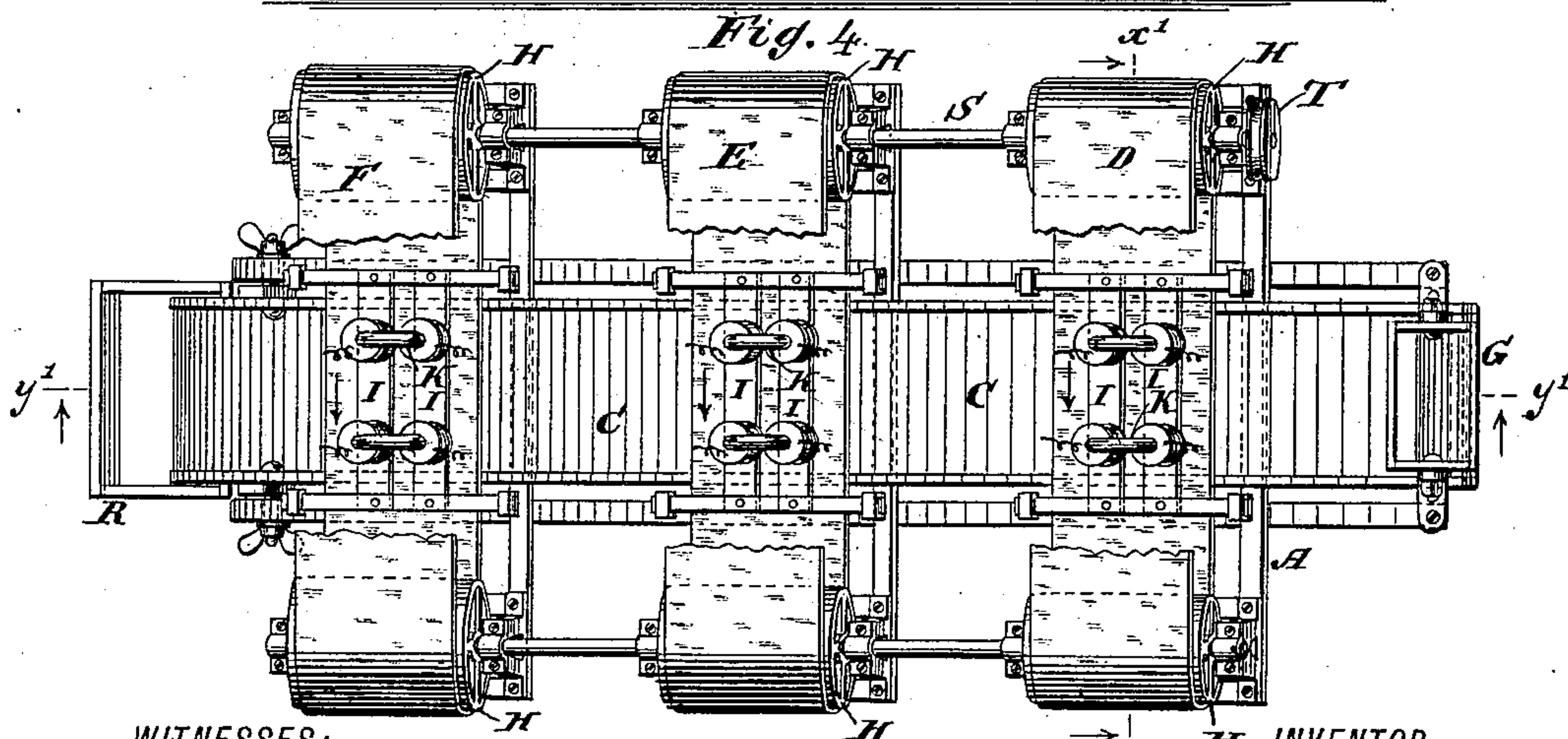


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GURDON CONKLING, OF GLENS FALLS, NEW YORK.

MAGNETIC SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 400,746, dated April 2, 1889.

Application filed July 12, 1888. Serial No. 279,754. (No model.)

To all whom it may concern:

Be it known that I, GURDON CONKLING, a citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented new and useful Improvements in Magnetic Separators, of which the following is a specification.

This invention relates to certain improvements on the magnetic separators described in Letters Patent No. 383,863, granted to me June 5, 1888, said improvements being set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a plan or top view of a separator. Fig. 2 is a vertical section in the plane xx , Fig. 1. Fig. 3 is a similar section in the plane yy , Fig. 1. Fig. 4 is a plan view of a modification. Fig. 5 is a section in the plane $x'x'$, Fig. 4. Fig. 6 is a section in the plane $y'y'$, Fig. 4.

Similar letters indicate corresponding parts.

In the drawings, the letter A indicates a frame or support having a conveyer, C. Said conveyer may be variously formed. For example, in Fig. 3 the conveyer consists of an apron, C, traveling over rollers B, while in Fig. 6 the conveyer C consists of an inclined plane. A hopper, G, serves to feed material—such as comminuted iron ore—onto the conveyer C. The material deposited on the conveyer slides or is carried toward the aprons D E F. The aprons travel over rollers H, and magnetic plates I are arranged in proximity to parts of the aprons which are near to the conveyer. The plates I can be magnetized by the electro-magnet K. As the iron ore passes along toward the aprons D E F, the magnetized plates I cause the iron particles of the ore to adhere to said aprons, while the waste or non-magnetic parts of the ore pass along and are deposited in the receptacle R.

The aprons carry the adhering iron particles toward the receptacles N. Brushes L secure a separation of the iron particles from the aprons, which particles, passing through the chutes M, are deposited in the receptacles N. The brushes L are rotated or actuated by the pulley P on the brush-shaft O. Said pulley P connects with the pulley Q on the shaft S, having the driving-pulley T. A belt, U, Fig. 1, transmits motion from the driving-pulley T

to the pulley V on one of the rollers B, so as to actuate the conveyer C when necessary. In the example shown in Fig. 4 the belt U is omitted, as the conveyer C is an inclined plane along which the ore slides. The shaft S supports or connects with one set of rollers H, so as to rotate said rollers and actuate the aprons D E F.

The aprons are secured at different distances from the conveyer. By having, for example, the apron D at a considerable distance from the conveyer the influence of the magnetic plate I of such apron D upon the ore on the conveyer will be so weak as to attract only pure iron particles, while the magnetic plate I of the apron E, being nearer to the conveyer, will attract particles of iron, to which adhere or which contain other substances not attracted by the magnet, and the apron F being still nearer to the conveyer its magnetic plate I will attract iron particles containing still more impurities. The aprons are thus made to deposit in their respective receptacles N iron particles in various grades of purity, the apron D depositing absolutely pure iron particles, the apron E less pure iron particles, and the apron F still less pure iron particles.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a conveyer, of a series of aprons to operate transversely to the conveyer and at different distances from the same, a magnetized plate secured in proximity to each of the aprons, and suitable driving mechanism for actuating the aprons, substantially as set forth.

2. The combination, with a conveyer, of a series of aprons to operate transversely to the conveyer and at different distances from the same, a magnetized plate secured in proximity to each of the aprons, a scraper or brush made to act on each of the aprons, a separate receptacle under each of the aprons, and suitable mechanism for actuating the aprons, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

GURDON CONKLING. [L. S.]

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.