

No. 700,474.

Patented May 20, 1902.

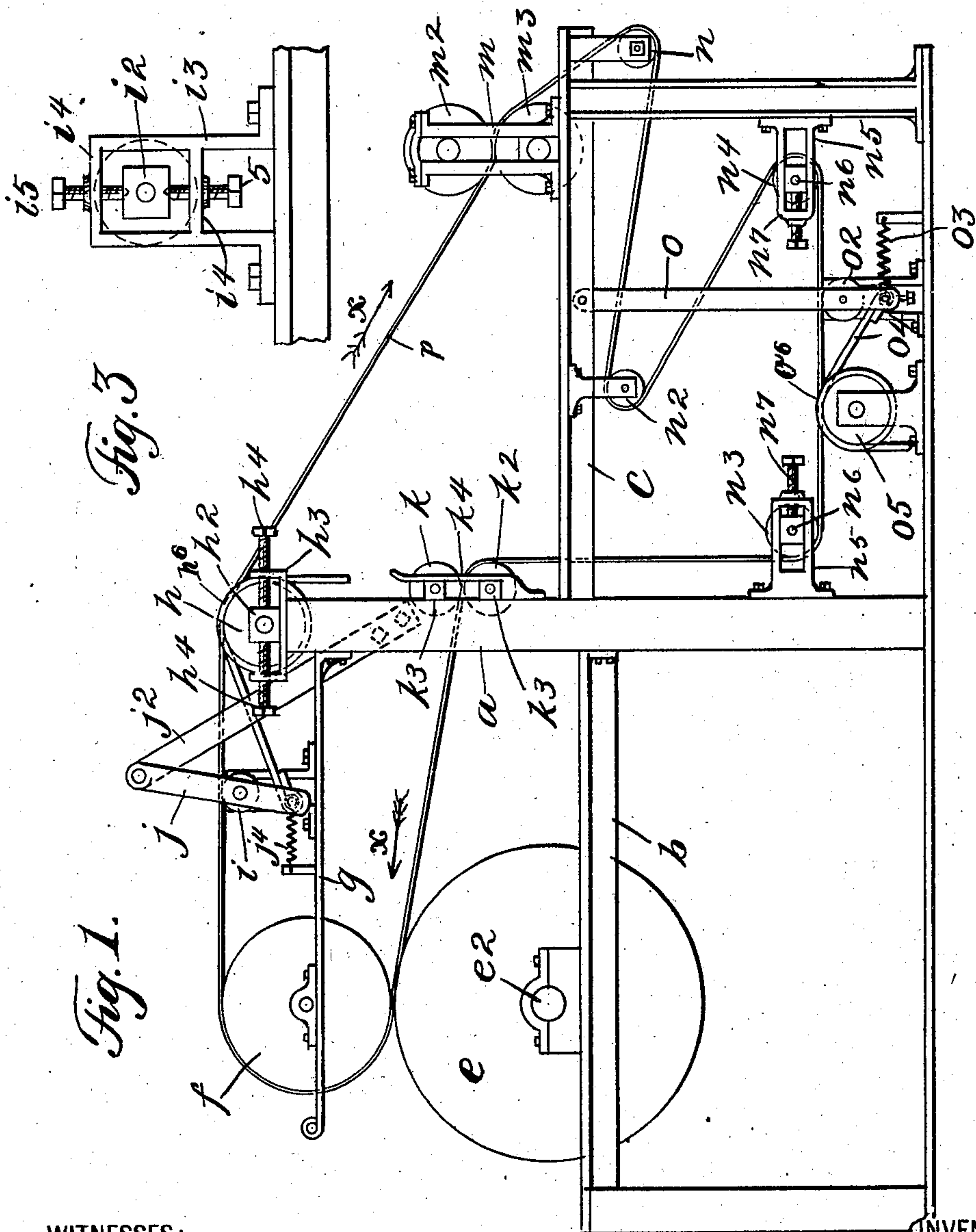
B. M. BISHOP.

ENDLESS BELT FEED OR CARRYING APPARATUS.

(Application filed Jan. 6, 1902.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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F. F. Fuller

INVENTOR

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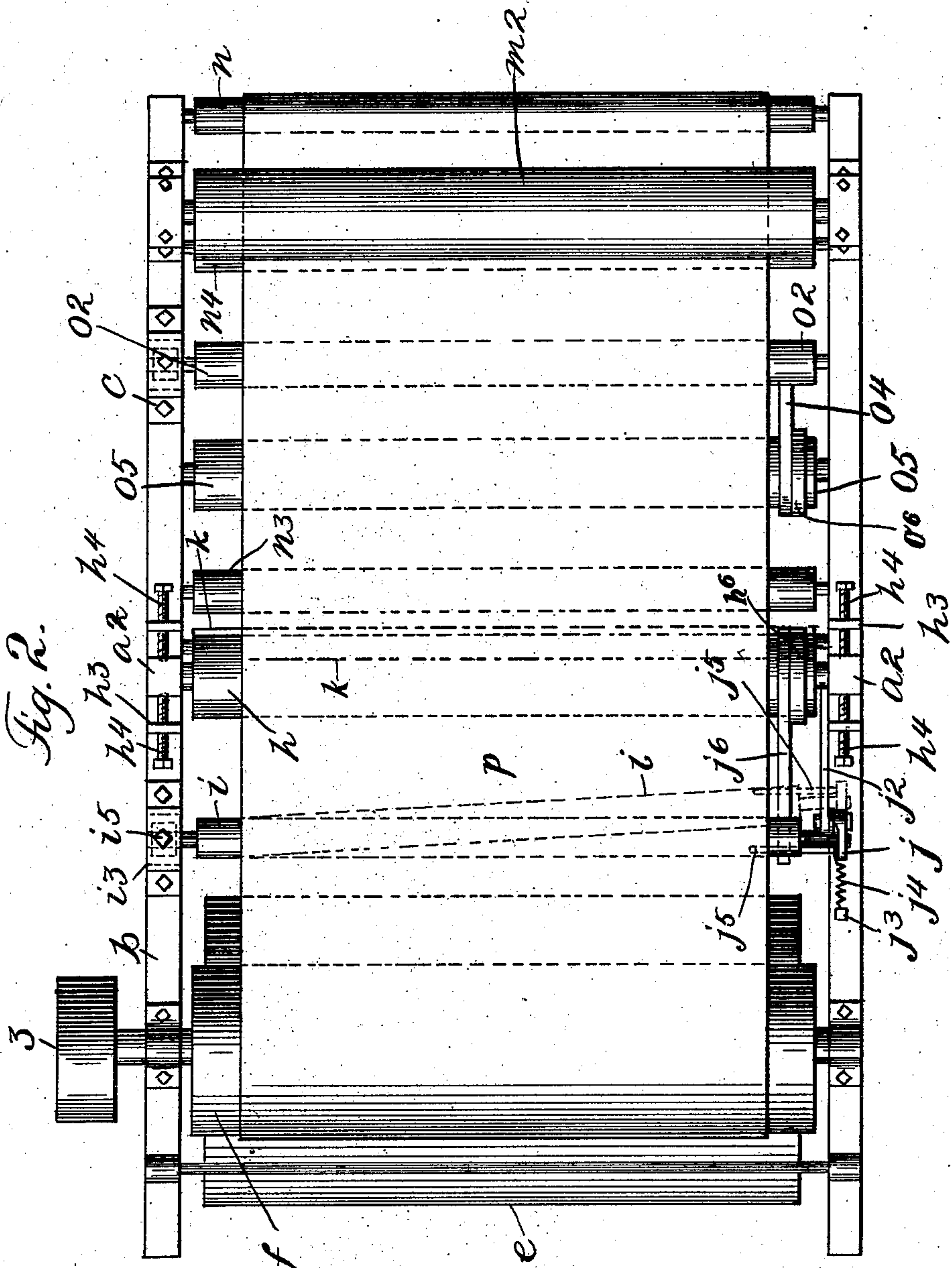
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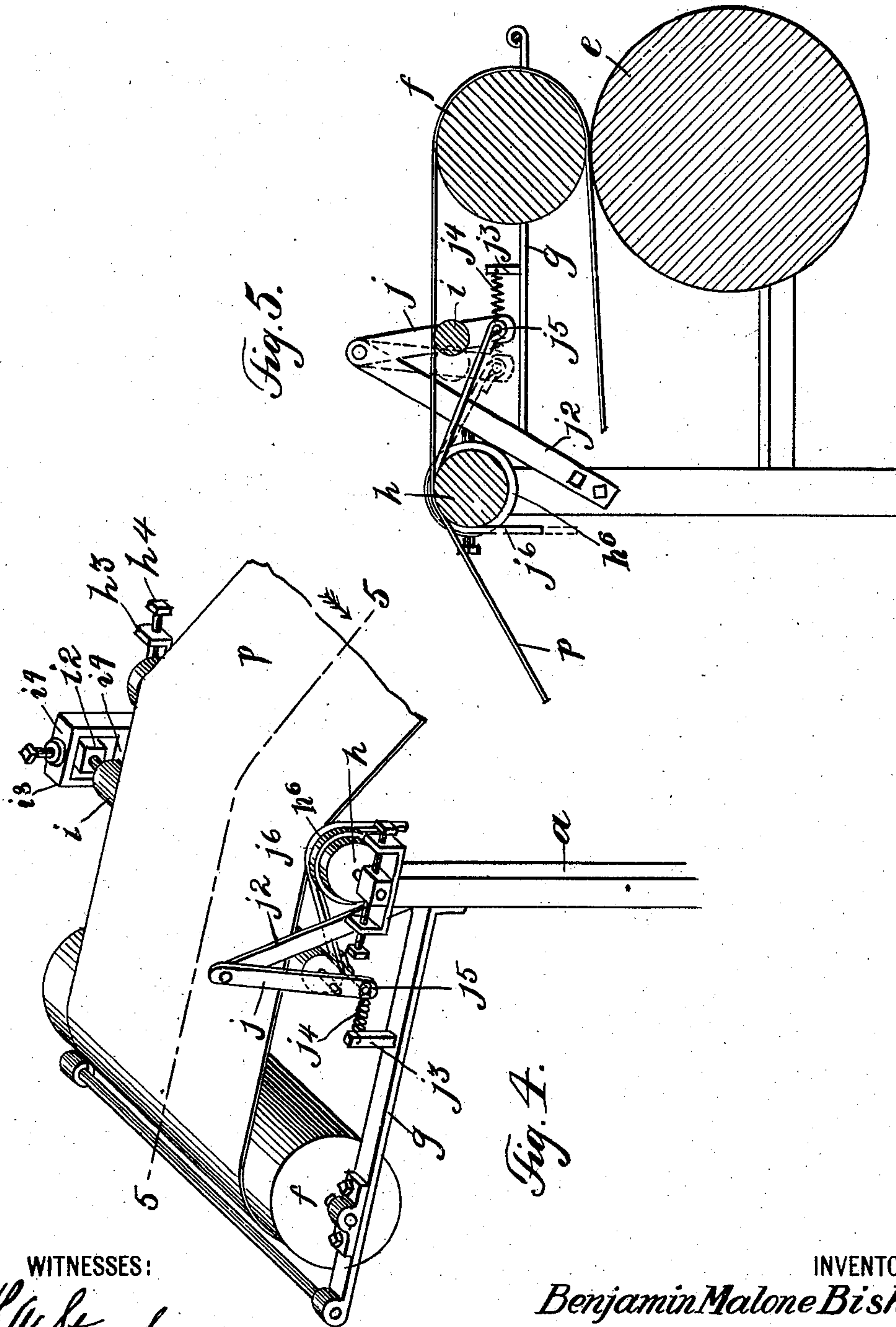
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

BENJAMIN MALONE BISHOP, OF BLOOMINGDALE, NEW JERSEY, ASSIGNOR
OF ONE-HALF TO FRED S. WHITE, OF BLOOMINGDALE, NEW JERSEY.

ENDLESS-BELT FEED OR CARRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 700,474, dated May 20, 1902.

Application filed January 6, 1902. Serial No. 88,531. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN MALONE BISHOP, a citizen of the United States, residing at Bloomingdale, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Endless-Belt Feed or Carrying Apparatus, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improvement in endless-belt feed or carrying apparatus, such as is used in the manufacture of paper, in printing-presses, in machines for ironing or pressing curtains, and for various other purposes, whereby the endless belt, which is preferably composed of felt, but which may be composed of any suitable material, is retained at all times in proper position on the rollers on which it is placed, a further object being to provide improved means whereby the position of the rollers may be regulated while the machine is in motion; and with these and other objects in view the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

In the drawings forming part of this specification, in which the separate parts of my improvement are designated by the same reference characters in each of the views, Figure 1 is a side view of my improved apparatus; Fig. 2, a plan view thereof; Fig. 3, a side view of a detail of the construction; Fig. 4, a perspective view of a part of the apparatus shown in Figs. 1 and 2, and Fig. 5 a partial section on the line 5 5 of Fig. 4.

In the practice of my invention as shown in the drawings I provide a frame comprising a central upright portion *a* and two horizontal portions *b* and *c* of less height than the central portion *a* and extending in opposite directions therefrom, and these frames may be made in any desired manner, and mounted in or on the top of the frame portion *b* is a roller *e*, above which is placed another but smaller roller *f*, which is supported by spring-arms *g*, connected with the top portion of the central frame portion *a*. Mounted on top of the central frame portion

a and transversely thereof and parallel with the rollers *e* and *f* is another roller *h*, supported in brackets *h*³, provided at the opposite sides with set-screws *h*⁴, by means of which the bearings *h*² may be adjusted laterally, as will be understood.

Between the rollers *h* and *f* and parallel therewith is mounted a guide and belt-regulating roller *i*, one end of which is mounted in a swiveled bearing *i*², which is supported in a frame *i*³, (shown in Fig. 3,) and which is provided with transverse members *i*⁴, having vertically-arranged screws *i*⁵, the adjacent ends of which are pivoted in the bearing *i*², and by means of this construction the end of said roller *i* opposite the bearing *i*² is free to move in any direction.

The roller *h* is provided at the end opposite the swiveled bearing *i*² of the roller *i* with a band *h*⁶ of rubber or similar material of substantially the same thickness as the belt *p*, and the end of the roller *i* opposite the bearing *i*² is supported in a link *j*, pivotally connected with an arm *j*³, rigidly secured to one side of the upright frame portion *a*, and secured to the corresponding arm *g*, which supports one end of the roller *f* by means of an upright stud *j*³, is a spring *j*⁴, which is connected with the lower end of the link *j* and normally holds it in the position shown in Figs. 1 and 4. Connected with the lower end of the link *j* by means of an inwardly-directed pin *j*⁵ is a flexible strap *j*⁶, preferably composed of leather, the free end of which is passed over and suspended from the roller *h*, adjacent to and in contact with the band *h*⁶. The upright portion *a* of the main frame is also provided centrally of the top portion thereof and above the horizontal frame portion *c*, which is slightly higher than the horizontal frame portion *b*, with two similar rollers *k* and *k*², one of which is placed directly over the other, and the bearings *k*³ of which are supported in a bracket *k*⁴ in such manner that the upper roller *k* is adapted to rest on the bottom roller *k*² and is vertically movable.

At the front of the frame portion *c* and supported thereover and mounted thereon and secured thereto at the opposite sides thereof are vertically-arranged supports *m*, in which

are mounted two rollers m^2 and m^3 , one of which is placed above the other, and the shafts of said rollers are free to move vertically in the bearings or supports m , and the roller m^2 rests on the roller m^3 , and below the rollers m^2 and m^3 and at the end of the frame portion c of the apparatus is placed a similar roller n , between which and the upright central frame portion a is a similar roller n^2 , and at the opposite end of the frame portion c of and parallel with and below and at the opposite sides of the roller n^2 are placed two smaller rollers n^3 and n^4 , which are provided with slotted supports n^5 , in which are mounted movable bearings n^6 , which support the rollers n^3 and n^4 , and screws n^7 are passed through the inner ends of the supports n^5 and connected with the bearings n^6 , and by means thereof the position of the rollers n^3 n^4 may be adjusted. Suspended from the top of the frame portion c , between the rollers n and n^2 and at one side thereof, is a swinging hanger o , in the lower end of which is mounted one end of a roller o^2 , and to the right of the lower end of the hanger o is secured a spring o^3 , connected with the lower end of said hanger, and a flexible strap o^4 , preferably composed of leather, is also connected with the lower end of said hanger, and the free end thereof is passed over a roller o^5 , supported between the roller o^2 and the roller n^3 and below the said last-named roller, and said roller o^5 is also provided at the end thereof with a band o^6 , composed of rubber or other elastic material of substantially the same thickness as the belt p and against which the strap o^4 rests. An endless belt p , preferably composed of felt, is mounted in this apparatus in the manner shown in the drawings, said belt being passed around the roller f , which bears on the roller e , over the roller h , between the rollers m^2 and m^3 , around and beneath the roller n^2 , back around the roller n^4 , then over the rollers o^2 and o^5 , up around the roller n^3 , and between the rollers k and k^2 .

The shaft of the roller m^3 is the main power-shaft of the apparatus and is driven by a pulley-wheel or other suitable device e^3 , (shown in Fig. 2,) and in this operation the endless belt p is moved in the direction of the arrows x . (Shown in Fig. 1.)

It will be observed that the rollers n^3 and n^4 are tension-rollers simply for regulating the tension of the belt, and the rollers i and o^2 are regulating-rollers for holding the belt in proper position and for preventing the same from working laterally off of the main guide-rollers, over, around, and between which it passes. If at any time in the operation of the machine the belt p should move toward the link j , which supports one end of the roller i , the said belt would press against the straps j^6 , which passes over and is suspended from the roller h , and the movement of the belt would operate to pull said end of the roller i upwardly and in the direction of the roller h , and this operation would cause the belt to

move back in the opposite direction or toward the end of the roller i opposite the link j , and it will be understood that the spring j^4 after the pressure on the strap j^6 is removed will return said end of the roller i back to its normal position.

The bands h^6 and o^6 are movable longitudinally of the rollers on which they are placed and may be moved thereon by means of the thumb and finger whenever necessary, and by this means the position of the belt may be also regulated, and said belt may be as narrow as desired and may be operated on either side of the machine, and although I have shown two of these devices it will be understood that one or more may be employed, as desired.

It will be understood that the end of the roller o^2 opposite the hanger o is supported in the same manner as the end of the roller i opposite the link j . In other words, the end of the roller o^2 opposite the hanger o is provided with a swiveled support similar to that shown in Fig. 3, and said hanger operates in the same manner as the link j .

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus of the class described provided with a plurality of carrying-rollers between some of which and over or around others of which an endless belt is passed, and a supplemental guide-roller over which the said belt is passed and one end of which is provided with a swiveled support and the other end of which is mounted in a swinging support, substantially as shown and described.

2. An apparatus of the class described provided with a plurality of carrying-rollers between some of which and over or around others of which an endless belt is passed, and a supplemental guide-roller over which the said belt is passed and one end of which is provided with a swiveled support and the other end of which is mounted in a swinging support, said swinging support being provided with a flexible strap which is passed over one of the carrying-rollers adjacent thereto, and said rollers being provided with a band, at their ends, against which said strip rests, substantially as shown and described.

3. An apparatus of the class described provided with a plurality of carrying-rollers between some of which and over or around others of which an endless belt is passed and a plurality of belt-retaining rollers over which the belt is passed, one end of said belt-retaining rollers being mounted in a swinging support, and said swinging supports being provided with flexible straps which are passed over a carrying-roller adjacent thereto, and said carrying-rollers being provided with a flexible band against which said strap rests, substantially as shown and described.

4. An apparatus of the class described provided with a plurality of carrying-rollers, a belt mounted thereon and a belt retaining or guiding roller over which the belt is passed,

one end of the belt retaining or guiding roller being mounted in a swinging support, and the other end thereof in a swiveled support, and said swinging support being provided
5 with a flexible strap which is passed over the carrying-roller adjacent thereto, said carrying-roller being provided with an elastic band, at the end thereof, against which said strap rests, substantially as shown and described.

It testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 21st day of December, 1901.

BENJAMIN MALONE BISHOP.

Witnesses:

JOSEPH B. WHITE,
FRANK HOSKING.