No. 787,183. PATENTED APR. 11, 1905.

J. H. IRVING.

BUNDLING APPARATUS.

APPLICATION FILED SEPT. 30, 1904.

3 SHEETS—SHEET 1.

Fig. 1

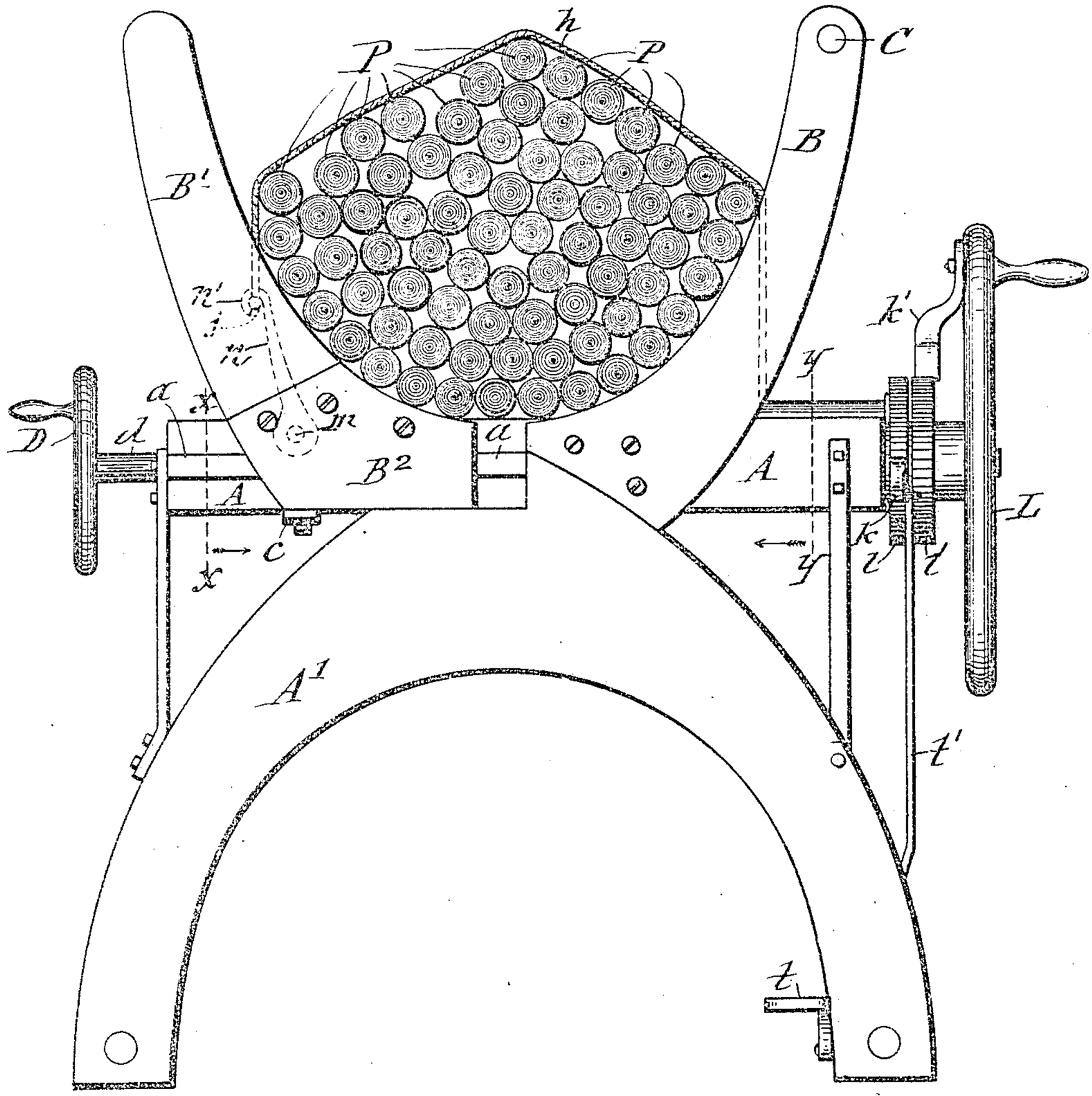
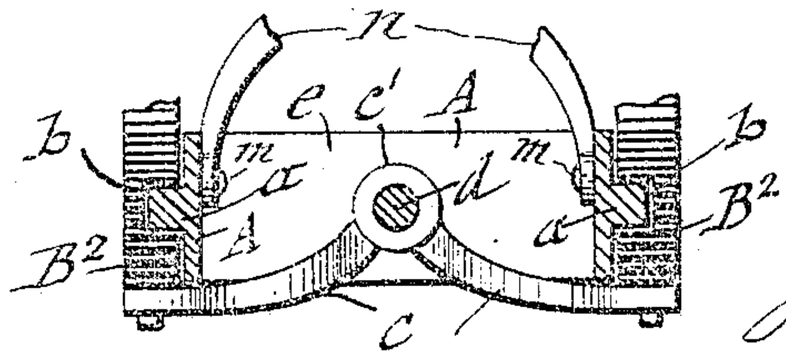


Fig. 6



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3 SHEETS—SHEET 2.

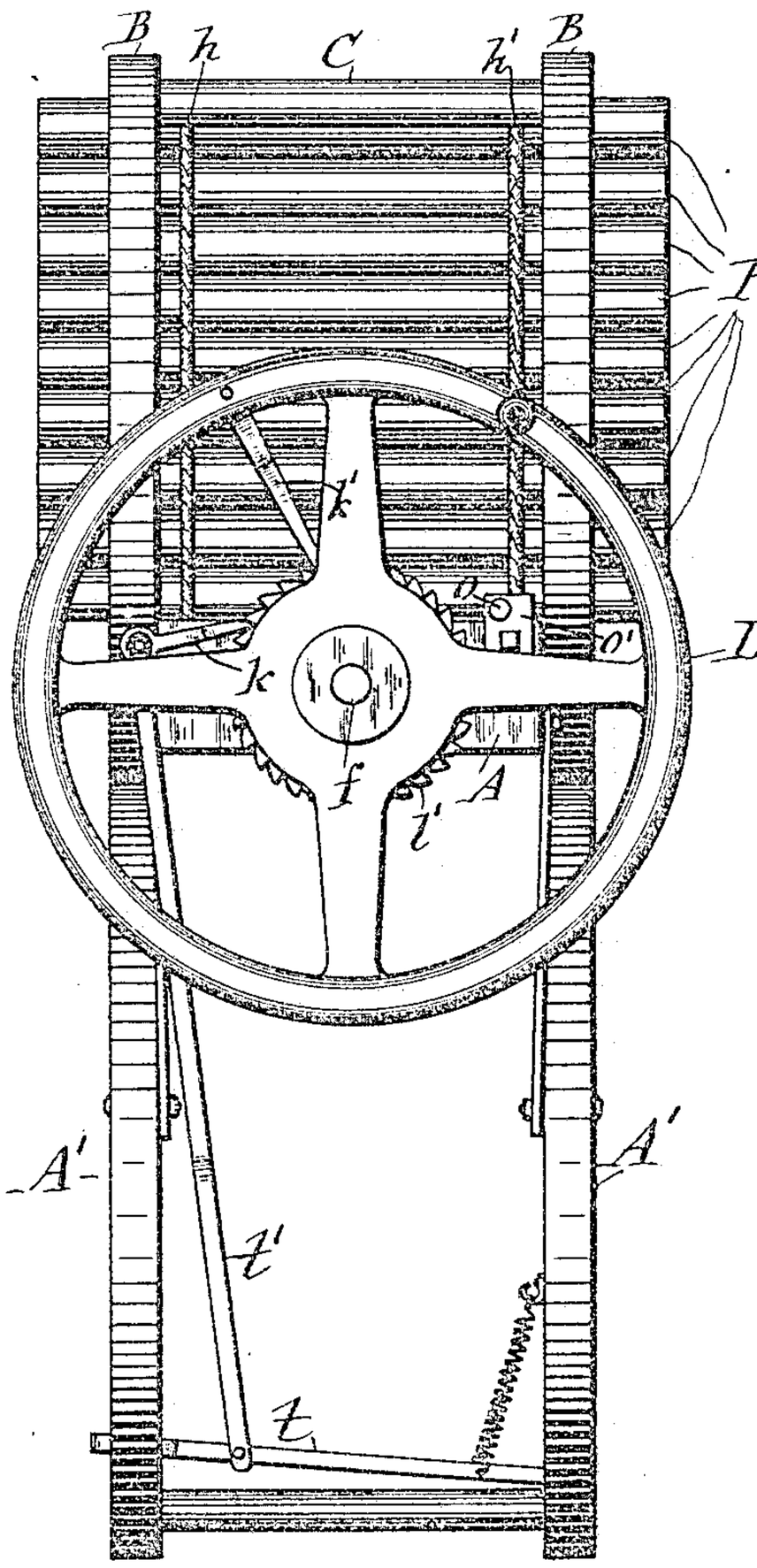

Fig. 2

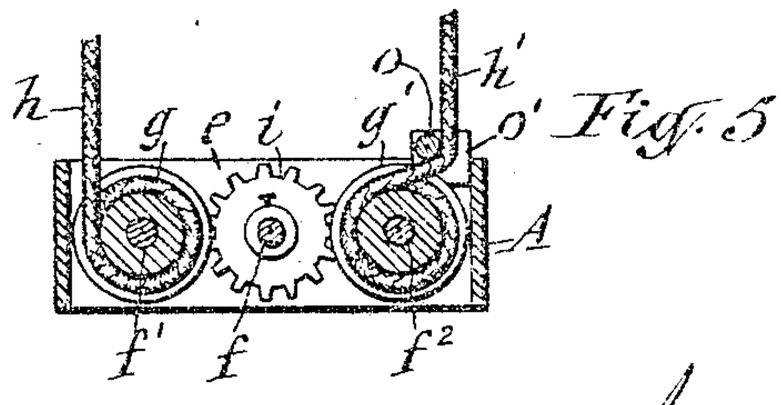

Fig. 5

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No. 787,183. PATENTED APR. 11, 1905.

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3 SHEETS—SHEET 3.

Fig. 4

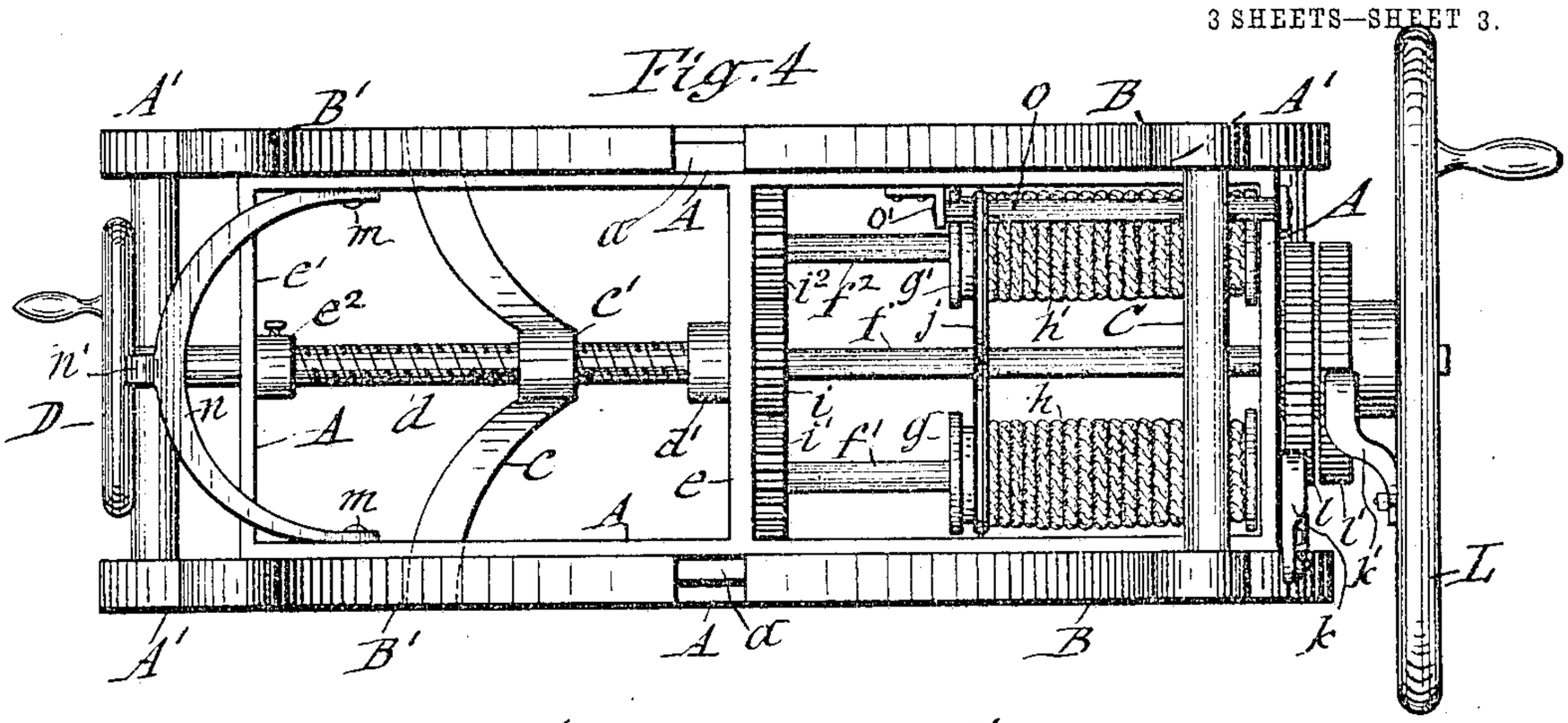
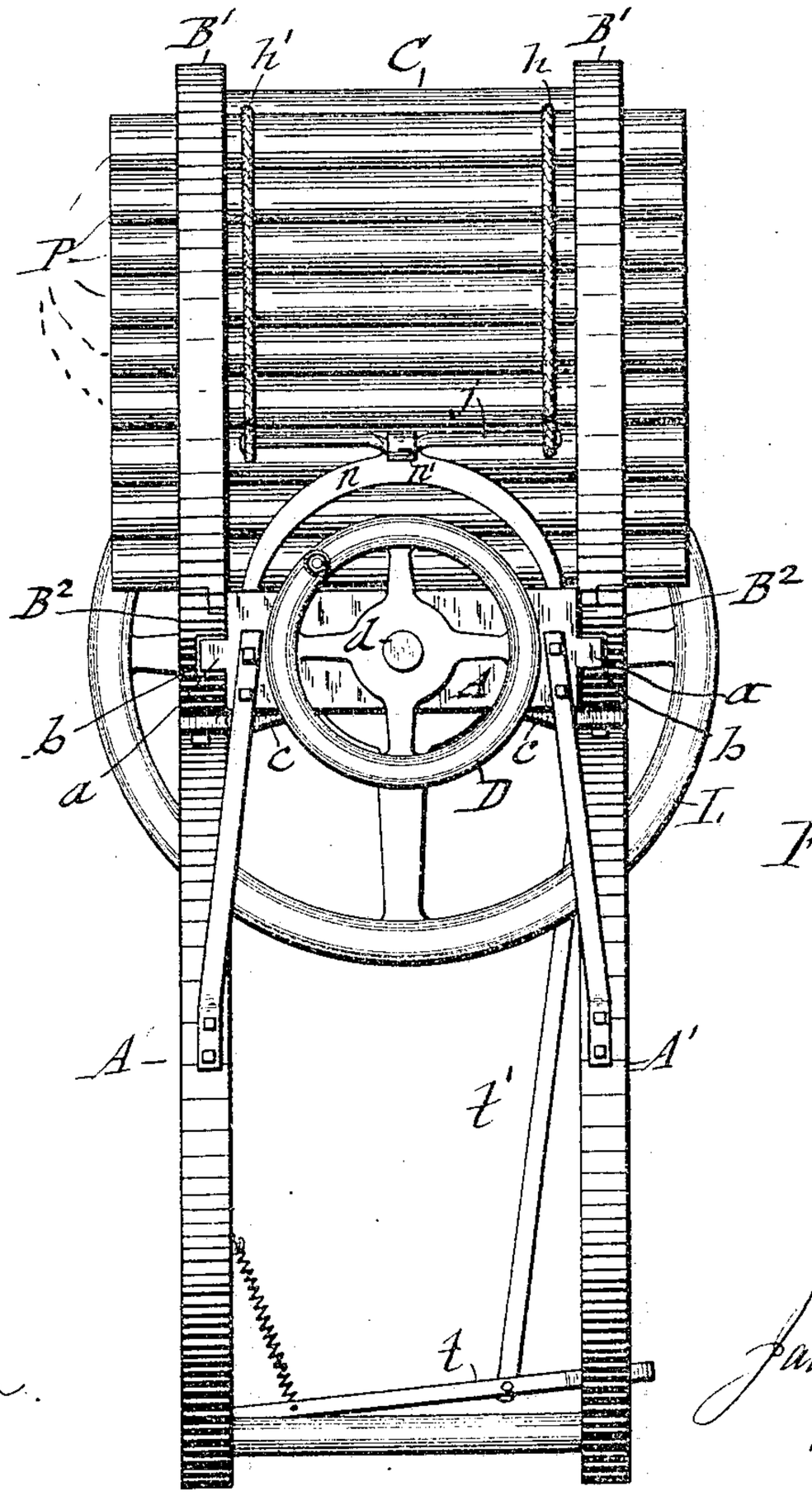


Fig. 3



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No. 787,183. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

JAMES H. IRVING, OF SYRACUSE, NEW YORK.

BUNDLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 787,183, dated April 11, 1905.

Application filed September 30, 1904. Serial No. 226,723.

To all whom it may concern:

Be it known that I, JAMES H. IRVING, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Bundling Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The purpose of this invention is to expeditiously and conveniently gather and securely tie in neat and compact bundles rolls of wall-paper and analogous articles; and to that end the invention consists in the improved bundling apparatus hereinafter described, and illustrated in the annexed drawings, in which—

Figure 1 is a front elevation of an apparatus embodying my invention and showing it with rolls of paper placed thereon preparatory to bundling and tying the said paper. Figs. 2 and 3 are elevations of opposite ends of said apparatus. Fig. 4 is a plan view of the same bared of the rolls to be bundled. Fig. 5 is a transverse section on line Y Y in Fig. 1 viewed in the direction of the dart, and Fig. 6 is a transverse section on the line X X.

Similar letters of reference indicate corresponding parts.

A represents the stationary supporting-frame of the apparatus, which frame is mounted at its ends on legs A'.

B B' represent a pair of arms which extend upward from the frame A and are curved toward each other to receive and hold between them the rolls of paper, (shown at P in Figs. 1, 2, and 3 of the drawings.) There are two pairs of such arms mounted on opposite sides of the frame A, as shown in Fig. 4 of the drawings. To the upper ends of the arms B B at one end of the frame A is attached a transverse bar C for the purpose hereinafter explained. Each pair of the arms B B' is made adjustable to vary the distance between the arms for receiving a larger or smaller number of rolls P P, as may be desired. This adjustability is obtained by means of longitudinal tongues *a*, projecting from the sides of the frame A and extending about half-way from one end thereof and passing through grooves *b*, formed in metal bases B^2 B^2, attached to the arms B' B'. A bar *c* extends across the frame A and is attached at its ends to the metal bases B^2 and formed with a screw-threaded sleeve *c'*, central between the sides of the frame A, as shown in Fig. 6 of the drawings. Through the sleeve *c'* passes a screw *d*, which is journaled at its inner end in a socketed boss *d'* on a cross-bar *e* of the frame A and has its opposite end passing loosely through another cross-bar, *e'*, on the end of the frame A and has affixed to its outer end a crank D. A collar d^2, fastened to the screw *d* adjacent to the inner side of the cross-bar *e'*, prevents the said screw from moving longitudinally. By turning the screw *d* the arms B' are moved either toward or from the arms B, which are bolted or otherwise rigidly attached to the frame A. The said adjustment of the arms B' B' varies the space between said arms and the opposite arms B B for the purpose hereinbefore stated.

Through the opposite end portions of the frame A extends longitudinally a shaft *f*, which is journaled at its inner end in the cross-bar *e* and passes with its opposite end through the end cross-bar of the frame and has fastened to its outer end two ratchet-wheels *l l'* and a crank L for turning said shaft. At opposite sides of and parallel with the shaft *f* are two shafts *f'* f^2, which have affixed to them pinions *i'* i^2, which engage a gear *i*, attached to the shaft *f*. The shafts *f'* and f^2 are thus caused to receive reverse rotary motion from the shaft *f* when turned by the crank L. On the shafts *f'* f^2 are mounted, respectively, the drums or cylinders *g g'*, upon which are wound, respectively, in corresponding directions one of the end portions of two chains or ropes or straps or other suitable flexible compressing devices *h h'*, which are adjustable, to be placed over the rolls P P of paper and to press the said rolls into a compact bundle, as hereinafter more fully described. The aforesaid chains or their equivalents are fastened at one end to the drums, and in order to spread the free ends apart from each other sufficiently to allow them to bear on the end portions of the paper-rolls P P, I wind the aforesaid compressing devices in such a direction as to cause one of them (represented at *h*) to leave the drum *g* from the outer side thereof. Over the

other drum, g', adjacent with the outer side thereof, I place a bar o, parallel with the drum and supported on a bracket o', attached to the frame A and on the end plate of said frame. The chain or its equivalent h' passes from the inner side of the drum g' around the outer side of the bar o and thence upward therefrom, as specially shown in Fig. 5 of the drawings. The free ends of the two chains h h' or their equivalents are attached to the ends of the cross-bar j. At the opposite end of the frame A is a yoke n, which spans the top of said frame and is pivotally connected to the sides thereof, as shown at m m. The center of this yoke is provided with a hook n', which is adapted to receive and hold in it the cross-bar j.

The operation of the apparatus is as follows: The free ends of the chains or their equivalents h h', with the bar j attached thereto, are thrown over the top of the bar C, hereinbefore referred to, and out over the adjacent end of the frame A to clear the space between the two pairs of arms B B'. Then the operator places the paper-rolls P P between the arms of said pairs, and after properly adjusting said rolls in their positions the operator throws the chains h h' or their equivalents over the pile of rolls and hooks the bar j onto the yoke n and then turns the crank L, which causes the drums g g' to turn in a direction to wind thereon the chains h h' or their equivalents and cause them to compress the pile of rolls into a compact bundle, which is then in condition to receive around it cords, by means of which the bundle is tied. The ratchet-wheels l and l' move with the crank L, which is operated by oscillating it. A dog k', connected to the crank L, engages the ratchet-wheel l' and transmits motion thereto. Another dog k engages the ratchet-wheel l to prevent its retrograde movement while the crank L is swung back to allow the dog k' to obtain a new hold on the ratchet-wheel l'. To facilitate the operation of releasing the ratchet-wheel l from the dog k when desired to remove the chains h h' or their equivalent from the bundle of rolls P P, I connect a treadle t to the dog k by means of a rod or bar t'.

What I claim as my invention is—

1. A bundling apparatus comprising a supporting-frame, two pairs of arms mounted on said frame and disposed to receive between the arms of each pair the rolls to be bundled, drums pivotally supported on the frame, means for rotating said drums, chains or their described equivalent connected at one end to said drums and a yoke connected to the supporting-frame and provided with means for connecting thereto the free ends of the chains or their equivalents.

2. A bundling apparatus comprising a supporting-frame, two pairs of arms mounted on said frame and disposed to receive between the arms of each pair the rolls to be bundled, a shaft disposed longitudinally in the center of the supporting-frame, a gear attached to one end of said shaft, means applied to the opposite end of the shaft for turning it, shafts at opposite sides of and parallel with the central shaft, pinions on said side shafts engaging the gear of the central shaft, drums mounted on the side shafts, chains or their described equivalents attached at one end respectively to the drums, a cross-bar attached to the free ends of said chains or their equivalents, a yoke connected to the frame and provided with means for connecting to it the aforesaid cross-bar, a ratchet-wheel attached to the central shaft, and a dog engaging said ratchet-wheel and preventing retrograde movement of the shaft, as set forth.

3. The combination with the supporting-frame provided with longitudinal tongues, arms rigidly attached to said frame at one side the center of its length, arms provided with grooves receiving through them the aforesaid tongues, a cross-bar attached to the grooved arms and provided with a screw-threaded sleeve, an adjusting-screw passing through said sleeve and restrained from longitudinal movement, chains or their equivalents adapted to be placed over the articles placed on the aforesaid arms, and means for tightening said chains or equivalents and compressing the aforesaid articles into a compact bundle, as set forth.

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Witnesses:
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L. H. FULMER.