

No. 817,026.

PATENTED APR. 3, 1906.

J. A. WHITE.
PAPER WINDING MACHINE.

APPLICATION FILED DEC. 21, 1905.

3 SHEETS—SHEET 1.

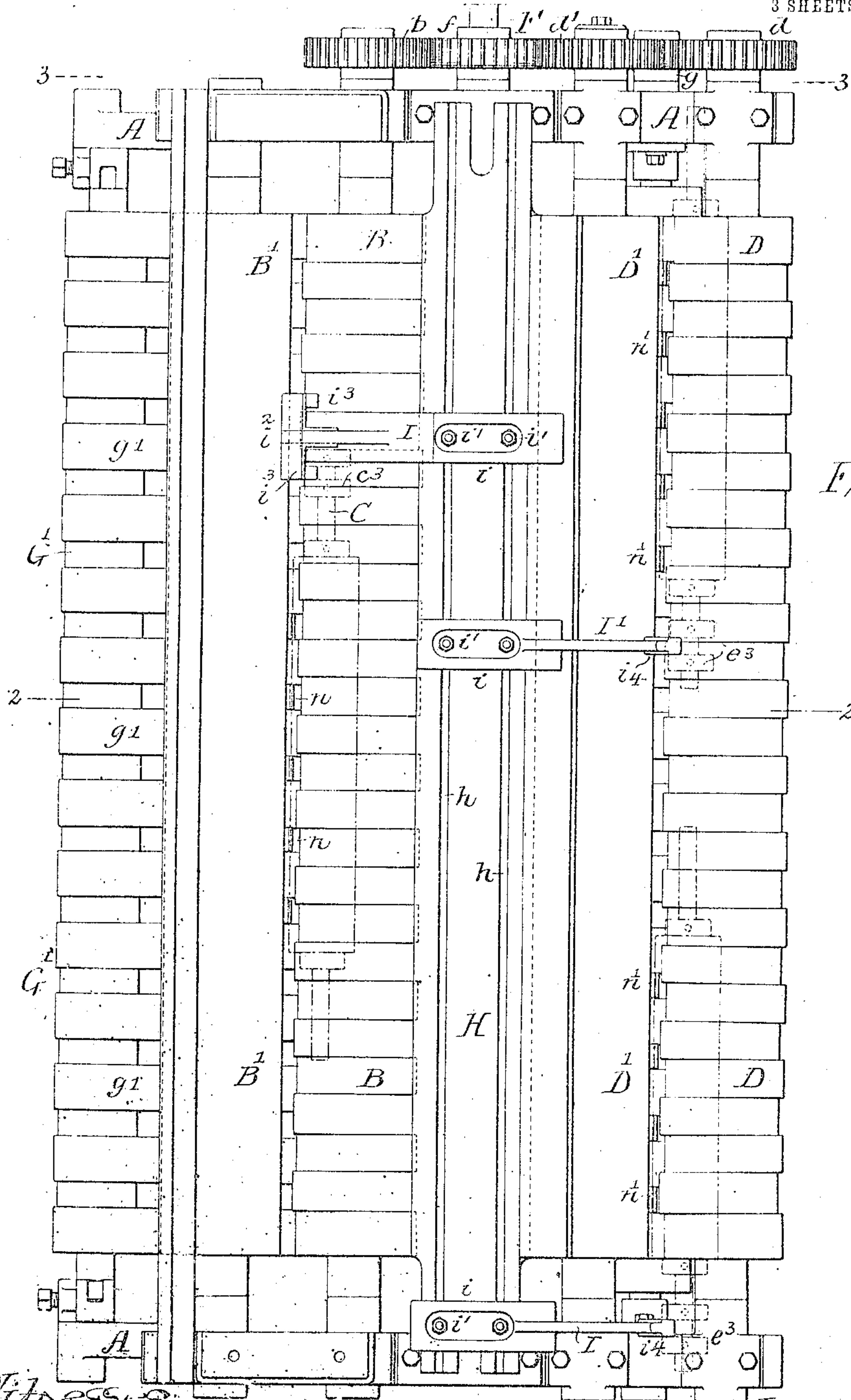


Fig. 1.

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Augustus K. B. B. B.

Inventor:

Joseph A. White.

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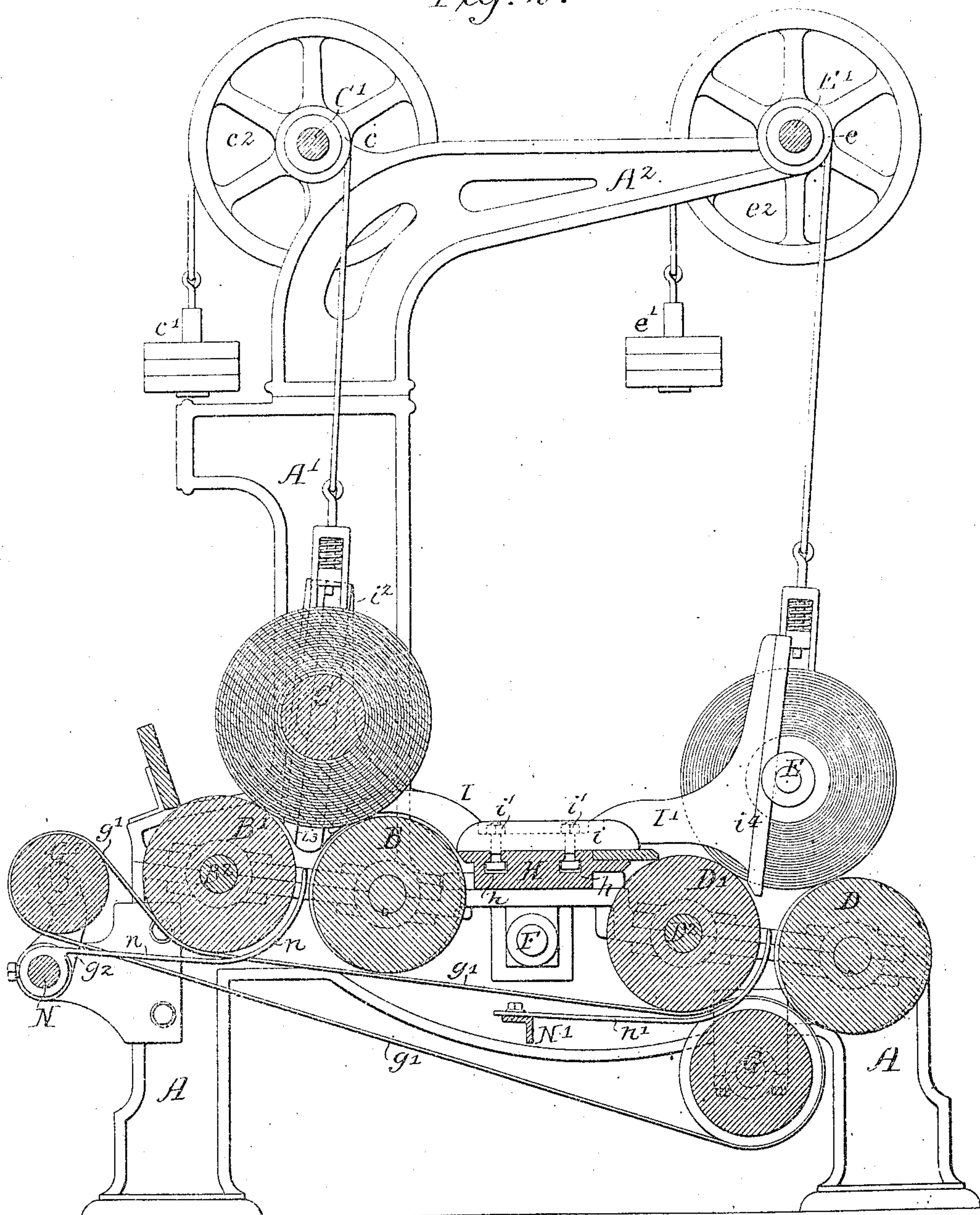
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3 SHEETS-SHEET 2

Fig. 2.



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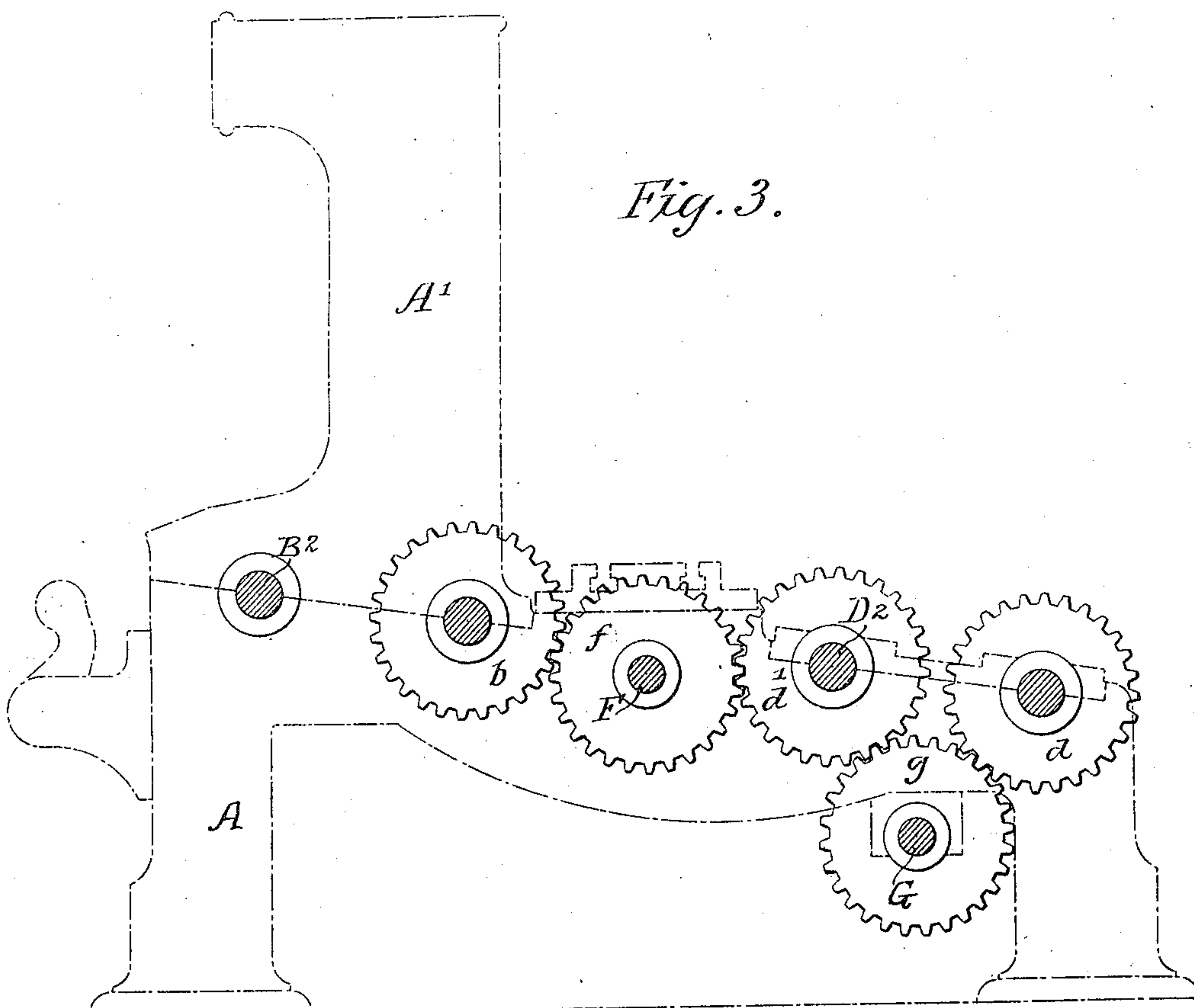
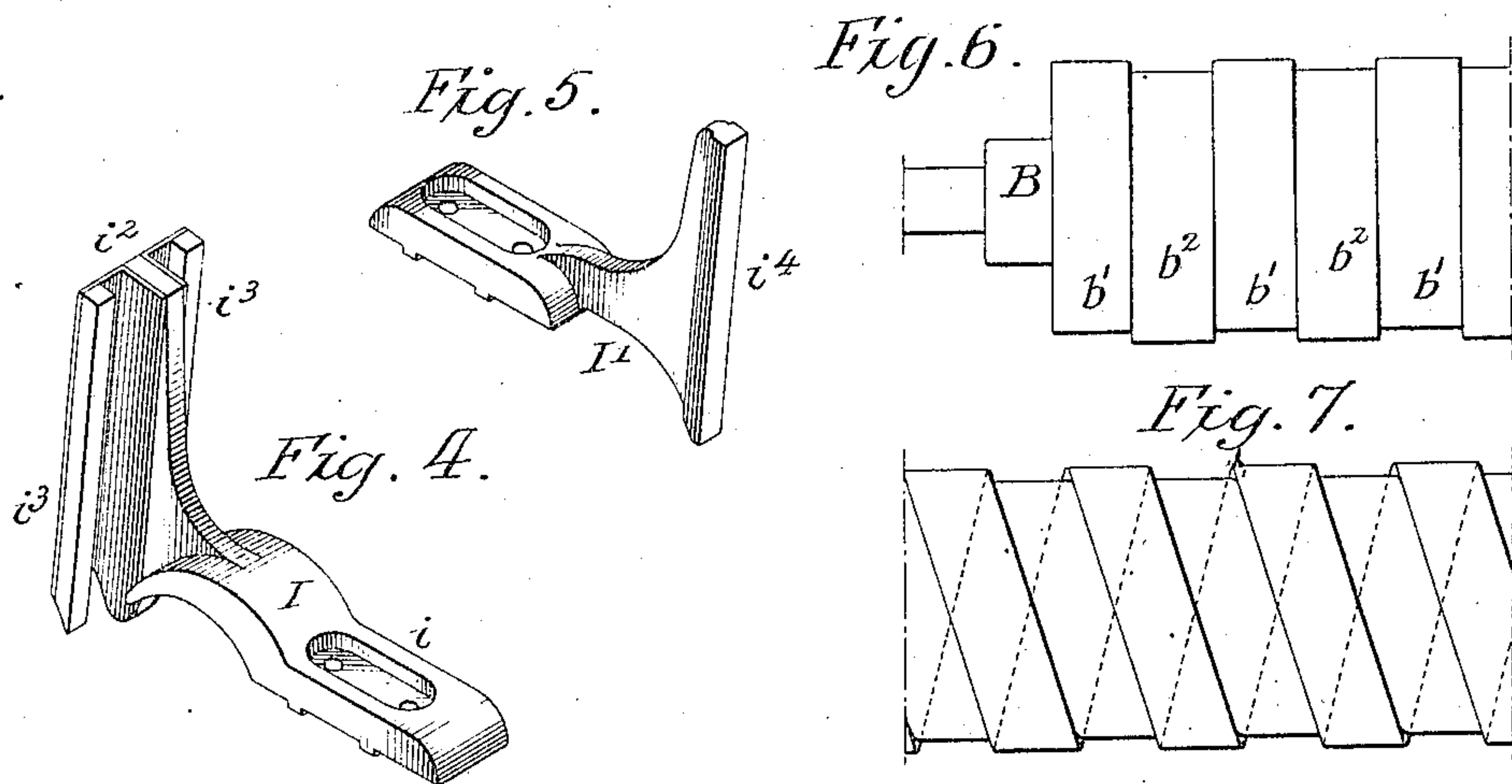
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JOSEPH A. WHITE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
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PAPER-WINDING MACHINE.

No. 817,026.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed December 21, 1905. Serial No. 292,857.

To all whom it may concern:

Be it known that I, JOSEPH A. WHITE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Paper-Winding Machines, of which the following is a specification.

My invention relates to certain improvements in the paper-winding machine for which application for patent was filed by me on the 21st day of November, 1904, Serial No. 233,681.

The main object of my present invention is to improve the construction of this type of machine and to provide means by which any width of paper can be wound on separate spindles or cores.

A further object of the invention is to so devise the machine that the weight of the paper will be carried by one roll, the other roll acting merely as a support to steady the roll.

A still further object of the invention is to provide means for keeping the roll of paper from creeping or buckling while being rolled.

These objects I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my improved paper-rewinding machine. Fig. 2 is a sectional view on the line 2 2, Fig. 1. Fig. 3 is a sectional view on the line 3 3, Fig. 1. Figs. 4 and 5 are perspective views of the roll-guides. Fig. 6 is a detached view of one of the rolls, and Fig. 7 is a modification of the method of forming one of the rolls.

In the present instance I have illustrated a double-drum winding-machine for winding two independent sets of rolls at the same time.

A is the frame of the winding-machine.

B B' are the carrying-rolls for supporting the roll of paper as it is rolled upon the first core C, and D D' are the rolls for supporting the roll of paper as it is being rolled upon the core E.

In the present instance F is a driving-shaft having a gear-wheel *f*, which meshes with a gear-wheel *b* on the spindle of the roll B, and this gear-wheel *f* also meshes with a gear-wheel *d'*, loose on the spindle D², carrying the roll D'. The roll D' is also loose on this spindle.

One of the features of this invention is to

drive by means of one roll, the other roll being loose and simply used to support the roll of paper. The gear-wheel *d'* meshes with a gear-wheel *g* on the shaft G, and this gear-wheel *g* in turn meshes with a gear-wheel *d*, secured to the spindle of the roll D. This roll D is fast to the shaft. The roll B' can be either mounted loosely on its spindle B² or can be fast to the spindle, the spindle revolving in bearings in the frame A. It will be noticed that each one of the spindles is suitably mounted in the bearing in the frame, as well as the shafts F and G. Thus it will be seen that the two rolls B and D are positively driven and constitute the means for imparting motion to the core or roll of paper as the paper is wound upon it. It will also be noticed that the bearings for the rolls B and D are slightly lower than the bearings for the rolls B' and D', respectively, so that the greater portion of the weight of the rolls is taken by the rolls B and D, the rolls B' and D' simply acting to keep the roll of paper in proper position. Thus the rolls B and D can readily turn the rolls of paper and properly wind the paper on said rolls.

G' is a drum having trunnions mounted on adjustable brackets *g*². A series of belts *g'* pass around this drum and around the drum on the shaft G, as mentioned in the application above referred to. These belts contact with the roll B' as well as the roll D' and act to feed the paper to the respective rolls. The arms *g*² can be adjusted so as to place more or less tension on the belts.

Carried by a bar N are fingers *n*, which are bent so as to extend between the rolls B B' to guide the paper to the coil on the core C, and N' is a bar to which the fingers *n'* are attached, which guide the paper that is carried by the belts *g'* past the first rolls, between the second rolls, to the coil on the core E.

A standard A' projects from each end frame A, and each standard carries an overhanging bracket A², on which are mounted the shafts C' and E'. Mounted on these shafts are wheels *c* and *e*, respectively, which are longitudinally adjustable and from which are suspended the chains having at their lower ends hooks which engage the spindles or cores on which the rolls of paper are to be wound.

Weights *c'* and *e'* are suspended from

wheels c^2 and e^2 , respectively, so as to counterbalance the rolls to any extent desired.

Extending from one frame A to the other is a platform H, having longitudinal grooves h therein. These grooves are preferably undercut for the reception of headed bolts. Mounted on the platform H are two or more guides I I', which are illustrated in Figs. 4 and 5. The guides I (illustrated in Fig. 4) are for the spindles or cores C, and the guides I' (illustrated in Fig. 5) are for the spindles or cores E. The guides I have a base-plate i , preferably provided with tongues which enter the grooves h in the platform H, and bolts i' are passed through the openings in the base-plate and through the slots in the platform, so that the guides can be locked in any position to which they are adjusted. The standards i^2 of the guides have ribs i^3 , and the cores C have heads or flanges c^3 at one or both ends, which rest back of these ribs i^3 , so as to hold the cores against longitudinal movement. It will be noticed that the standard i^2 is inclined forward, so that as the roll of paper increases in size its center is moved forward to insure the weight being carried by the driving-roll. The guide I' has a base-flange i , secured by bolts i' to the platform H, and has a single standard i^4 , also inclined forward and which rests in a groove formed by flanges e^3 in the mandrel or core E and prevents this core or mandrel moving longitudinally.

In some instances the rolls B and D may be plain; but I prefer in many instances to form them as illustrated in Fig. 6, in which B is a roll cut so as to form a series of eccentric ribs b' and b^2 , so set that one rib is high on one side where the alternate rib is low. This construction tends to make a very tight roll of paper, as it will prevent the paper creeping and forming permanent buckles or loose portions in the roll. As soon as a buckle does form it is pressed out as it passes the roll.

The roll may be formed as shown in Fig. 7 in some instances, where a band may be wrapped spirally around a plain roll, accomplishing somewhat the same result, as the wrapping is such that the enlargement on one side of the roll is directly opposite the depression on the opposite side.

Thus it will be seen that by my invention I am enabled to roll paper on any number of separate cores, and the amount of paper to be rolled on each core may vary without interfering with the rolling of the proper amount of paper on the other cores. I keep the cores from moving longitudinally, and the weight of the rolls of paper is taken by one roll instead of two, as heretofore. The other roll acts simply as an idler, keeping the paper in proper position.

I claim—

1. The combination in a paper-rewinding machine of a pair of rolls, the bearing of one roll being below the bearing of the other roll

so that the weight of the paper being rolled will be carried by the lower roll, with means for positively driving the lower roll, substantially as described.

2. The combination in a paper-rewinding machine of two rolls situated side by side, one roll being mounted lower than the other so that the paper being rolled will be carried by the lower roll, the other roll acting as a guide, means for positively driving the lower roll, the other roll being loosely mounted so as to turn freely with the roll of paper as it is wound, substantially as described.

3. The combination in a paper-rewinding machine of two sets of winding mechanism, each set consisting of two rolls, one roll of each set being lower than the other roll, the lower roll of each set being driven, the other roll of each set being loosely mounted, cores upon which the paper is to be wound, one core mounted above each set of rolls, and guides for the cores, substantially as described.

4. The combination in a rewinding-machine, of two rolls, cores mounted above the rolls, a platform, a bracket mounted on the platform and arranged to guide the cores, substantially as described.

5. The combination in a rewinding-machine of two rolls, cores mounted above the rolls, a platform, a bracket mounted on the platform and arranged to guide the cores, and means carried by the bracket for preventing the cores moving longitudinally, substantially as described.

6. The combination in a paper-rewinding machine of two rolls, means for driving one of said rolls, cores above the rolls upon which the paper is to be wound, a transverse platform, a bracket on the platform, said bracket having a rib, the cores having a groove formed by a flange into which the ribs of the bracket extend so as to prevent the said cores moving longitudinally, substantially as described.

7. The combination in a paper-rewinding machine of two sets of rolls, one roll of each set being loosely mounted, a driving-shaft, a gear-wheel on said driving-shaft, said gear-wheel meshing directly with the gear-wheel on the driven roll of one set, and indirectly meshing with the driven roll of the other set through two gears, substantially as described.

8. The combination in a paper-rewinding machine of two sets of rolls, one roll of each set being loosely mounted, a driving-shaft, a gear-wheel on the driving-shaft, said gear-wheel meshing directly with the gear-wheel on the driven roll of one set, and indirectly meshing with the driven roll of the other set through two gears, one of said gears being mounted on the shaft carrying a belt-drum, belts leading from said drum to a belt-drum at the front of the machine so as to carry the paper to be rewound to one or the other set of rolls, substantially as described.

9. The combination of two rolls, one roll mounted above the other, so that the weight will be carried by the lower roll, a bracket laterally adjustable on the frame of the machine and having a standard inclined forward, substantially as described.

10. The combination in a paper-rewinding machine of a pair of rolls, a core above the rolls, said core having a grooved end, a bracket laterally adjustable on the frame of the machine having a standard inclined, substantially as described.

11. The combination of a pair of rolls for supporting and winding a roll of paper, cores upon which the rolls of paper are wound, a bracket laterally adjustable on the frame of the machine, said bracket having an inclined

standard, said standard having a rib on each side so as to engage with two cores to prevent them moving laterally and guiding them as the roll is being formed, substantially as described.

12. The combination in a paper-rewinding machine of two rolls, one roll being driven, said roll having a surface consisting of a series of eccentric sections, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH A. WHITE.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.