

No. 629,071.

Patented July 18, 1899.

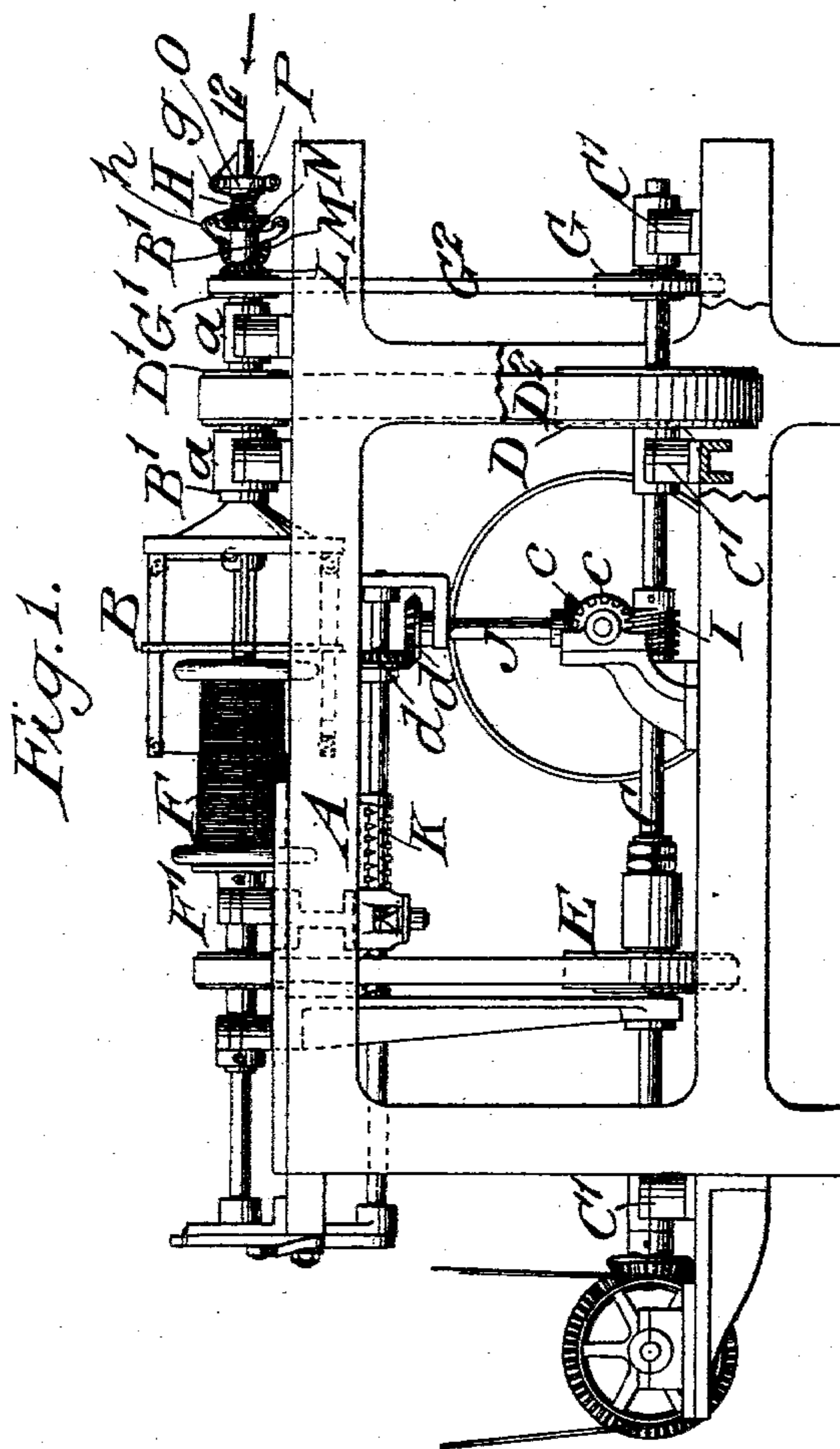
J. GOOD.

FLIER FOR SPINNING MACHINERY.

(Application filed July 18, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
George Barry Jr.
Edward Vieser.

Inventor:-
John Good
by attorneys
Rowell & Howard

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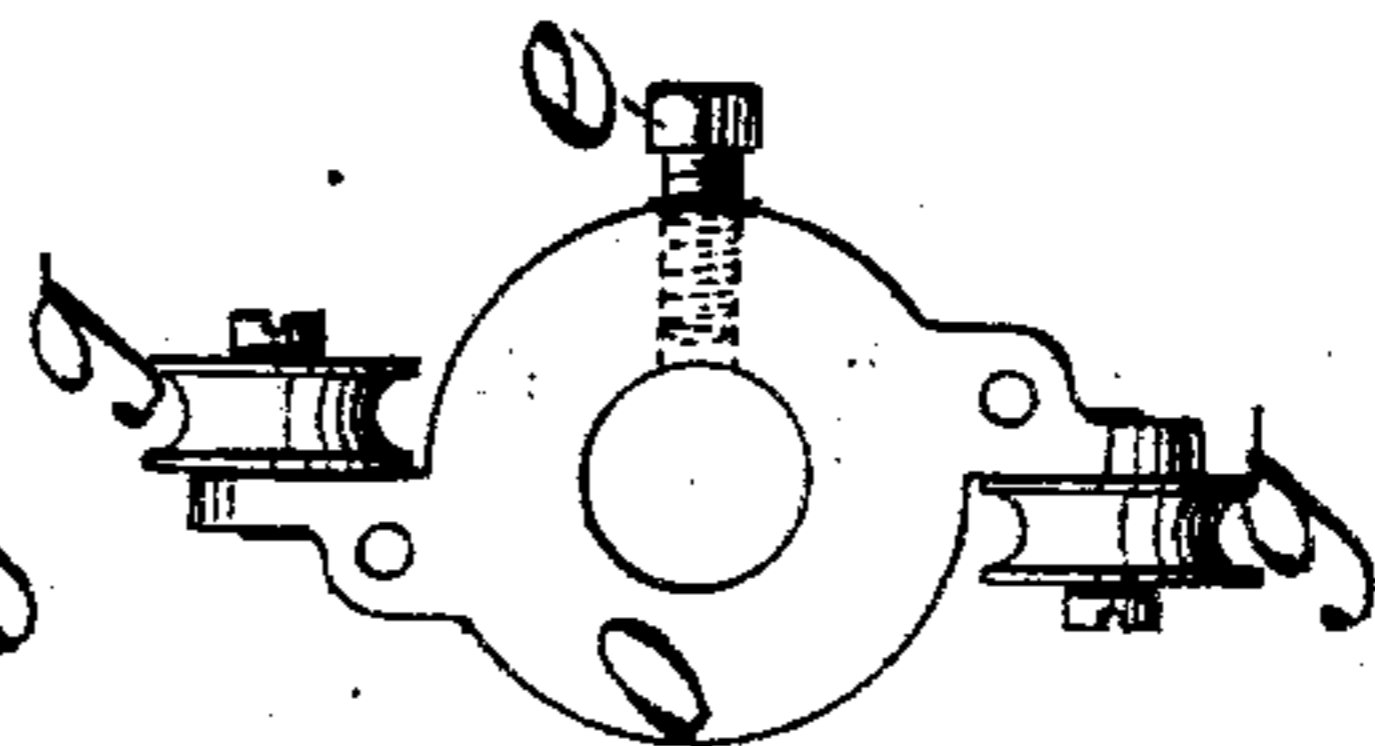
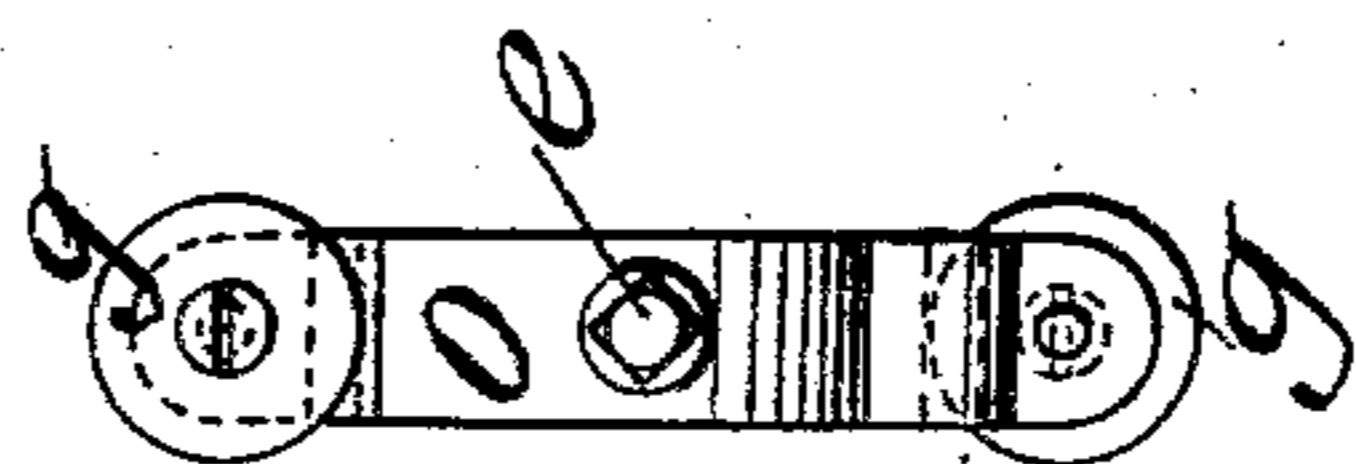
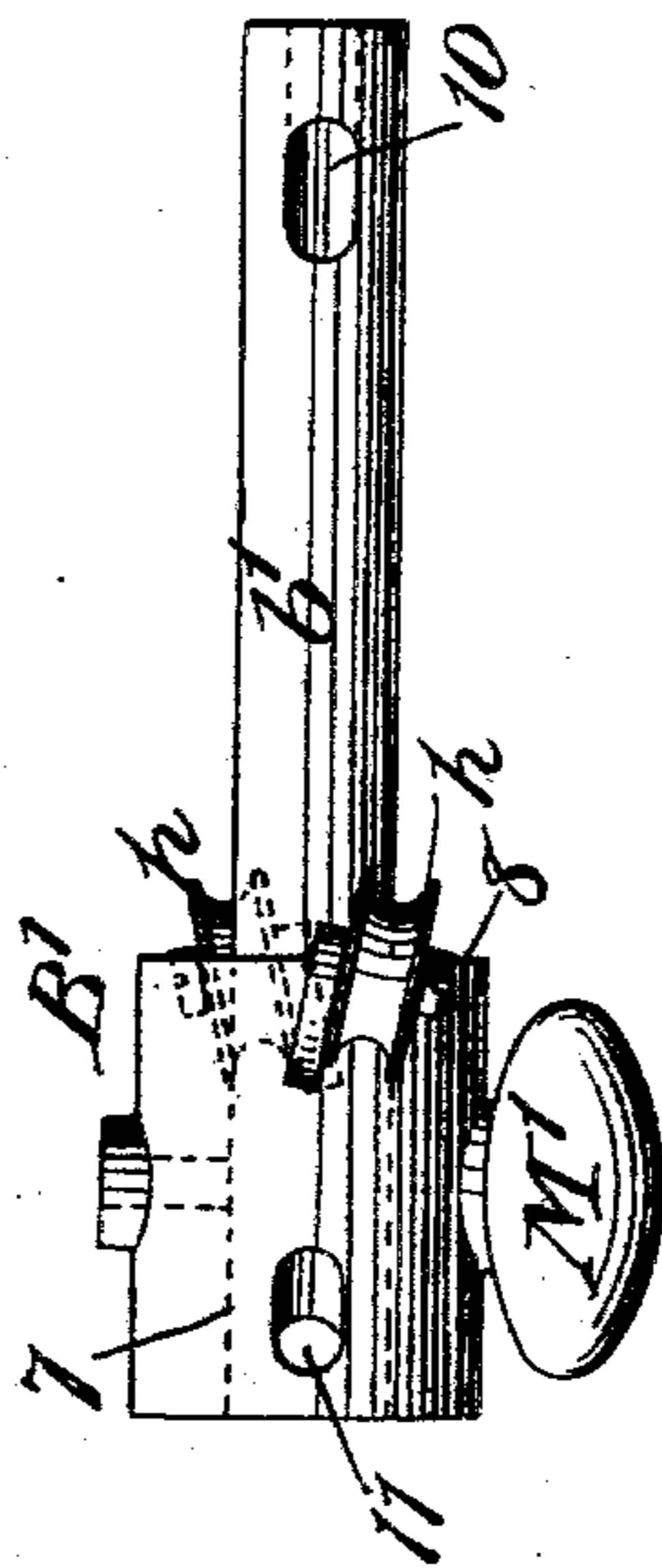
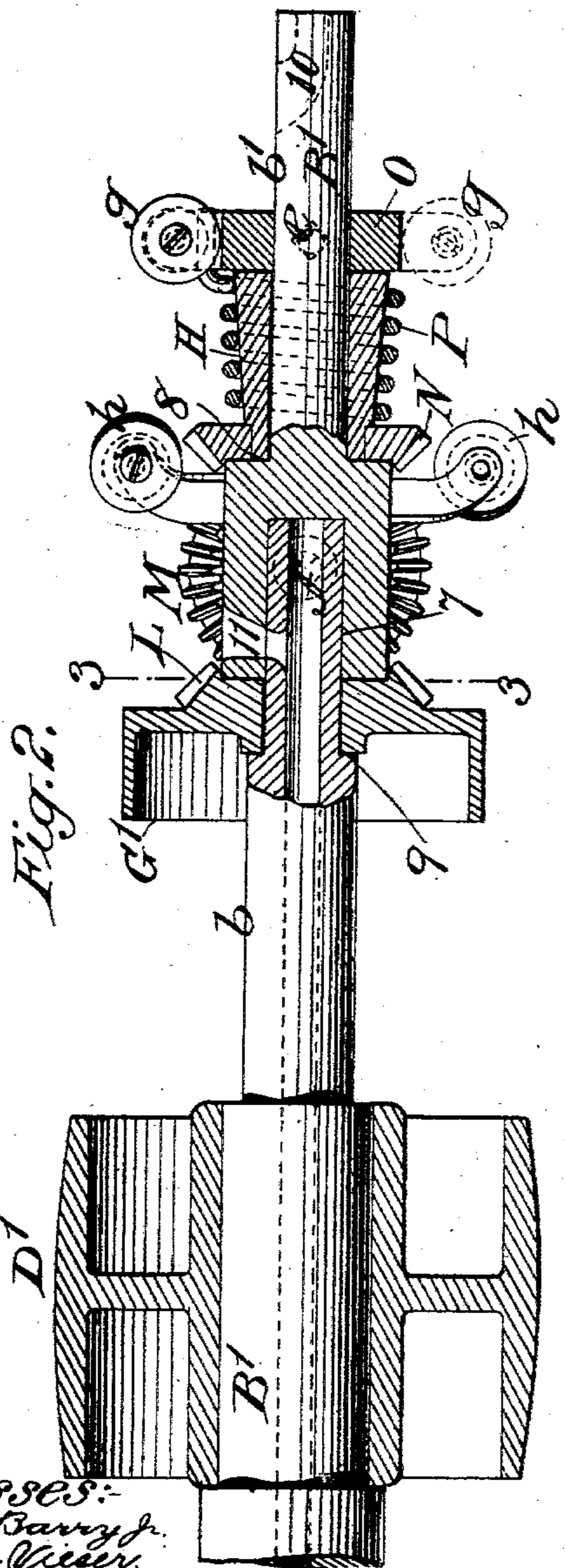
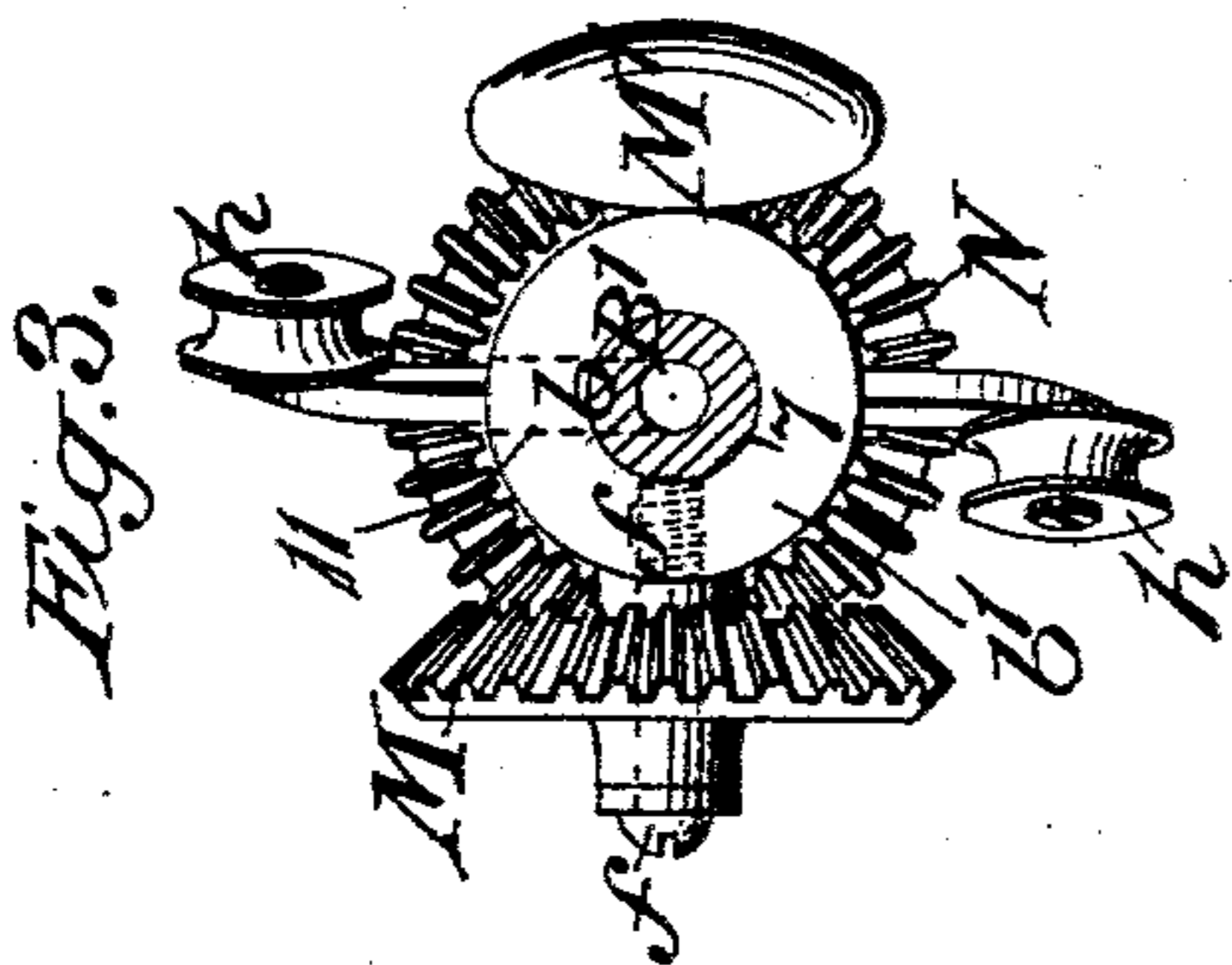
J. GOOD.

FLIER FOR SPINNING MACHINERY.

(Application filed July 16, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN GOOD, OF NEW YORK, N. Y.

FLIER FOR SPINNING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 629,071, dated July 18, 1899.

Application filed July 16, 1898. Serial No. 686,107. (No model.)

To all whom it may concern:

Be it known that I, JOHN GOOD, a citizen of the United States, and a resident of New York, (Far Rockaway,) in the county of Queens and State of New York, have invented a new and useful Improvement in Fliers for Spinning and the Manufacture of Cordage, of which the following is a specification.

This invention relates to all such fliers for the spinning of twine and rope yarns and for other operations in the manufacture of cordage as are provided with attached capstans for the drawing thereinto of the sliver to be spun or the yarns to be twisted together.

The object of the improvement is to so apply the capstan to the flier and to so provide for driving it as to reduce the amount of centrifugal force developed in its rotation and to reduce its wear and the wear of its immediately-associated parts.

To these ends the improvement consists principally in the placing of the capstan upon the flier concentric therewith, so that the axis of the one is coincident with the axis of the other; and it further consists in the combinations hereinafter described and claimed, in which the so-placed capstan is an essential element.

For the purpose of explaining the invention it is illustrated in the accompanying drawings as applied to a spinning-machine of the jenny type, that kind of machine serving as well as any other for that purpose.

Figure 1 is a side elevation of such parts of the machine as are necessary for the explanation. Fig. 2 is a longitudinal view, partly in section, of the flier-journal to which the concentric capstan is applied, showing also in part the means for driving the capstan. Fig. 3 is a transverse section in the line 3 3 of Fig. 2. Fig. 4 is a longitudinal view of an extension-piece applied to the flier-journal to carry the capstan. Figs. 5 and 6 represent, respectively, side and front views of guide-pulleys and the carrier by which they are attached to the said extension-piece.

Similar letters and numerals of reference designate corresponding parts in all the figures.

A, Fig. 1, is the framing of the machine, on the top of which are arranged the stationary bearings *a a* for the journal *B'* of the flier *B*.

In the lower part of said framing are arranged the bearings *C'* for the shaft *C*, which is parallel with the axis of the flier and which carries the pulley *D* for driving the flier, the pulley *E* for driving the bobbin *F*, and a third pulley *G* for driving the concentric capstan *H* of the flier. The said shaft *C* also carries the endless screw *I*, which, through an upright shaft *J* and bevel-gears *c c* and *d d*, drives the traverse-screw *K*, by which the bobbin-carriage *F'* is operated to produce the reciprocating longitudinal movement of the bobbin *F* within the flier.

The parts above referred to, except the concentric capstan *H* and its driving-pulley *G*, are all such as may be found in known machines of the jenny type and are only represented and herein described to facilitate the practical application of the invention, which will now be described in detail with reference to Figs. 2, 3, 4, 5, and 6.

The flier-journal (designated as a whole by the letter *B'*) is made of two pieces *b* and *b'*. Of these the piece *b*, immediately connected with the head of the flier and fitted to the journal-boxes *a* and which is hollow throughout, has fast upon it the pulley *D'*, through which the flier is driven by a belt *D²* from the pulley *D* on the shaft *C*. The other piece *b'*, which may be called the "extension-piece" and is a mere prolongation of *b*, has an eye 10 in its outer end and is provided at its inner end with a socket 7, which is bored centrally to receive the terminal portion of the piece *b*, onto which the said socket is tightly driven, so that *b* and *b'* are practically one piece, their separate construction being merely for convenience of applying the capstan *H* and its driving mechanism. The capstan *H*, concentric with the flier, is fitted to turn freely on the extension-piece *b'*, but is confined lengthwise thereon between a solid shoulder 8 on said piece and a collar *O*, which is fitted tightly on said piece and secured firmly thereon by a set-screw *e*. Between the inner end of the extension-piece and a shoulder 9 on the piece *b* there is loosely fitted to the flier-journal a pulley *G'*, which receives motion through a belt *G²* from the pulley *G* on the shaft *C*, and on or fastened to the said pulley is a bevel-gear *L*, which is geared through a loose intermediate bevel-gear *M*,

carried by the flier-journal B', with a bevel-gear N, fast on the capstan. Said bevel-gear M is fitted to turn freely on a pivot *f*, which projects outward from the flier-journal radially thereto. In the example represented this pivot consists of the shank of a set-screw *f*, which is screwed through the side of the socket 7 of the extension-piece *b'* and made to bite on the part *b* of the journal for securing *b* and *b'* together. The bevel-gears being all of one size, the capstan is caused to rotate at the same speed as the pulley D', but in the opposite direction. The pulleys G G' and D D' are so proportioned that the pulley D' rotates faster than G', which is thus caused, through the gears L M N, to drive the capstan slower than the flier and in the opposite direction.

The collar O before mentioned carries two light guide-sheaves *g*, either of which serves to guide to the capstan the twine 12 or material which is being spun or twisted and which passes into the flier-journal B' through the eye 11 in the end of the said journal. The socket 7 of the extension-piece carries two similar sheaves *h*, either of which serves to guide the twine or spun or twisted material to the eye 11, which is formed in the socket 7 and corresponding portion of the piece *b* of the journal B' and through which the material passes again into the hollow portion *b'* of the journal, through which it passes onward to the flier B. The flier-journal is represented as having a counterbalance M' applied to it opposite the bevel-gear M.

Firmly secured to the collar O, which, as will be understood, is virtually a part of the flier-journal, there is a spiral guide P, which loosely but closely surrounds the capstan and rotates independently thereof with the flier. The sides of the capstan are straight—that is, without the grooves common to flier-capstans in common use. This guide P is represented as an open-sided coil of wire with the spaces between its coils wide enough for the passage of the twine or material, which is coiled several times around the capstan and which by the rotation of the capstan independently of the flier is wound upon the capstan and so drawn into the flier-journal and over the sheave *g*, while said guide by its rotation with the flier independently of the capstan pushes said material on-

ward along the capstan, whence it passes over the sheave *h* to enter the hollow portion of the flier-journal through the eye 11, thence passing on through the journal to the body of the flier to be thereby wound upon the bobbin.

The capstan, arranged concentric with the bobbin according to this invention, is subject to the minimum of centrifugal force in its rotation, and consequently the least possible wear, which is of very great importance in fliers which run at a very high speed.

What I claim as my invention is—

1. The combination with a flier and its journal and a capstan fitted loosely on said journal, of means for driving said flier and capstan independently of each other at different speeds, and a spiral guide consisting of an open-sided coil carried by the flier and encircling the capstan, substantially as herein described.

2. The combination with a flier and its journal and a capstan fitted loosely on said journal, of means for driving the flier, a gear fitted to the flier-journal to turn thereon independently thereof and means for driving said gear, a gear fast to the capstan, a pivot projecting from the flier-journal radially thereto, and an intermediate gear turning freely on said pivot and gearing with said gears on the flier-journal and capstan, substantially as and for the purpose herein set forth.

3. The combination of the flier-journal made of two parts *b b'* one of which is provided with a socket 7 to receive and hold the end of the other which is provided with a shoulder 9, a capstan and attached gear N fitted to turn on said part *b'*, a pulley and attached gear L fitted to turn on said part *b* between its shoulder 9 and the end of said socket 7, and an intermediate loose gear M carried by said part *b'* and engaging with the gears M N; all substantially as and for the purpose herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 15th day of July, 1898.

JOHN GOOD.

Witnesses:

FREDK. HAYNES,
EDWARD VIESER.