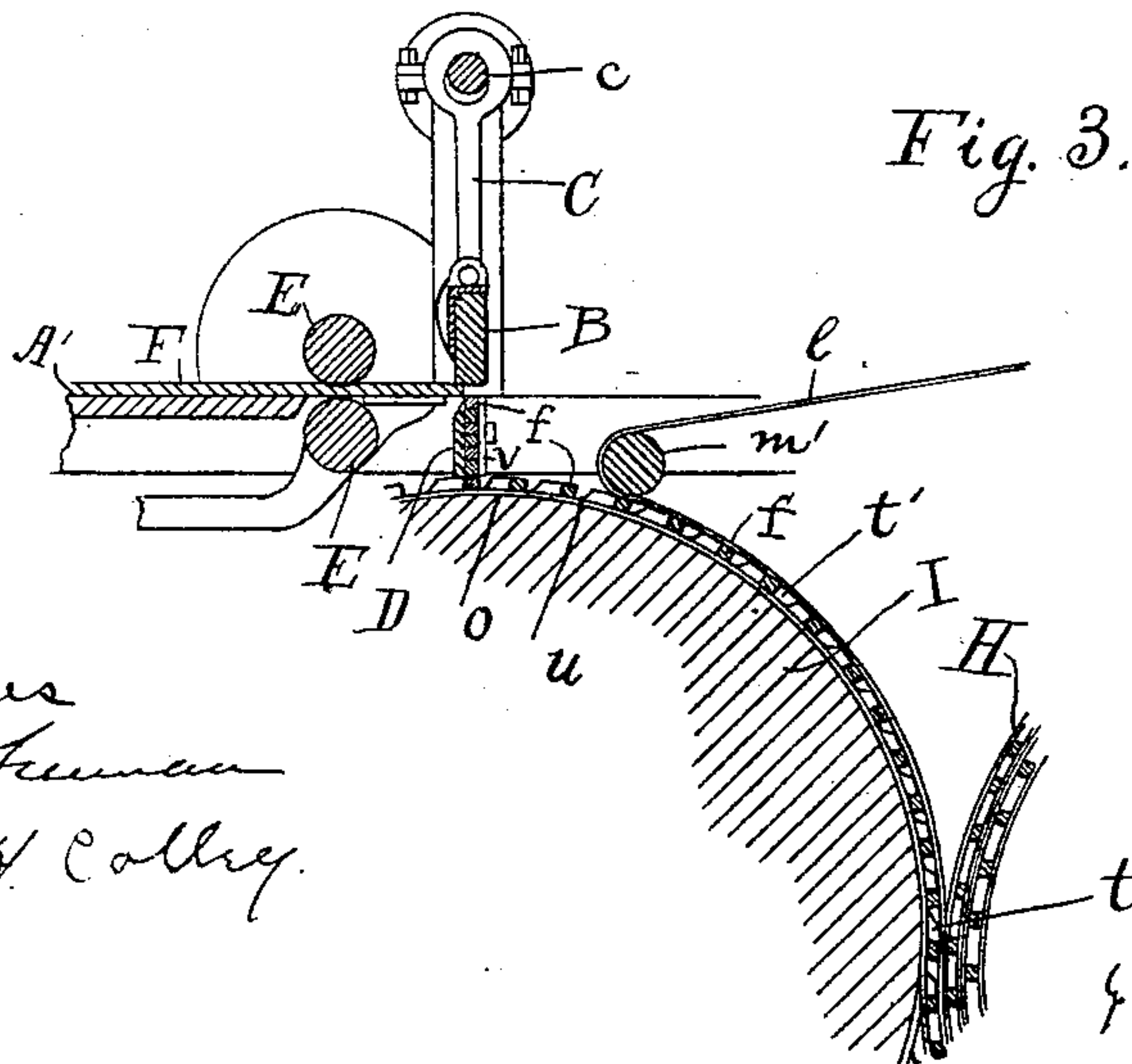
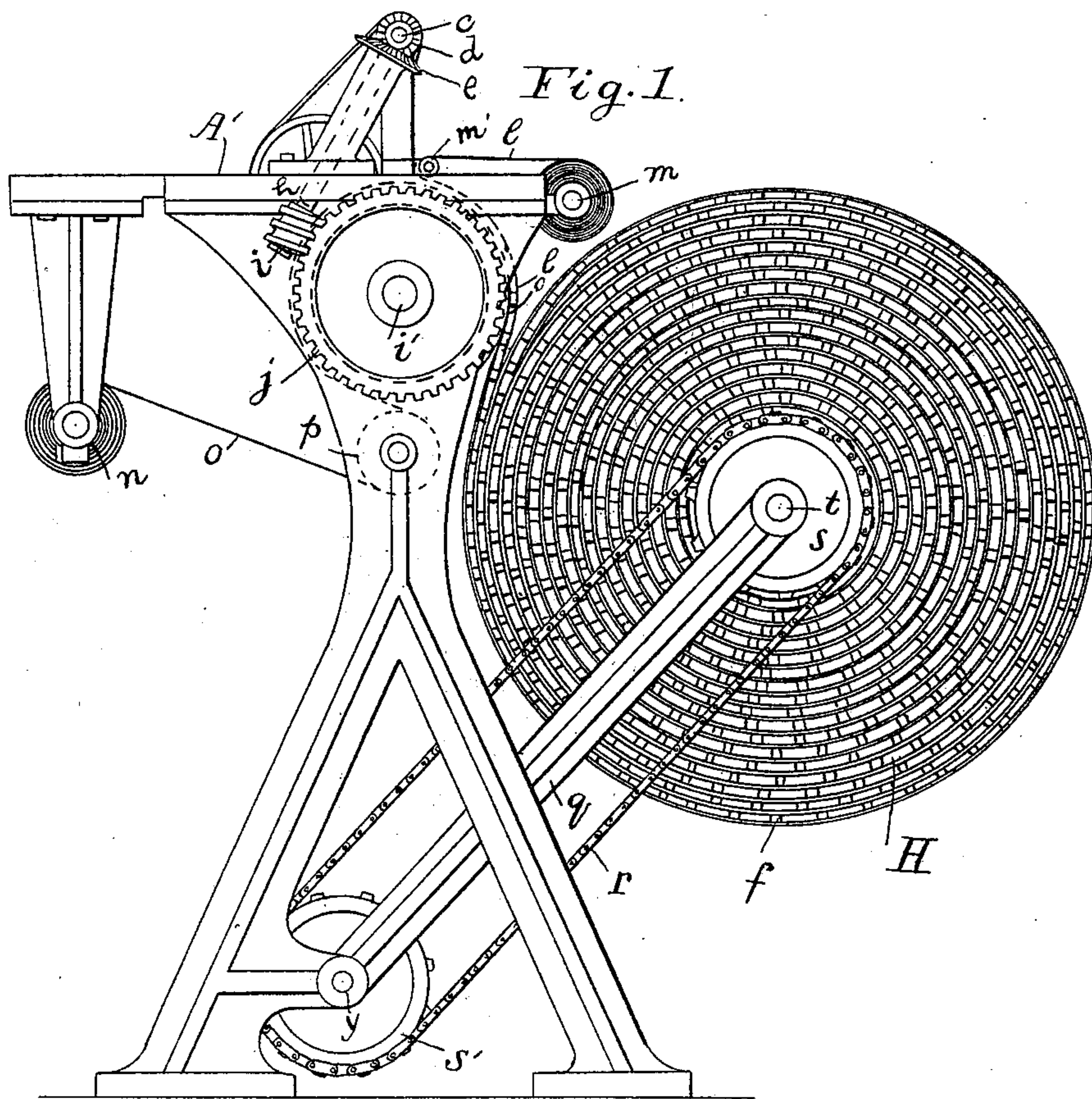


2 Sheets—Sheet 1.

No. 592,741.

Patented Oct. 26, 1897.



Witnesses
Edmund Freeman
Frank H. Colby.

Inventors:
Charles F. Seaman
+ Carroll L. Farrar
Ellery C. Farrar
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Atty.

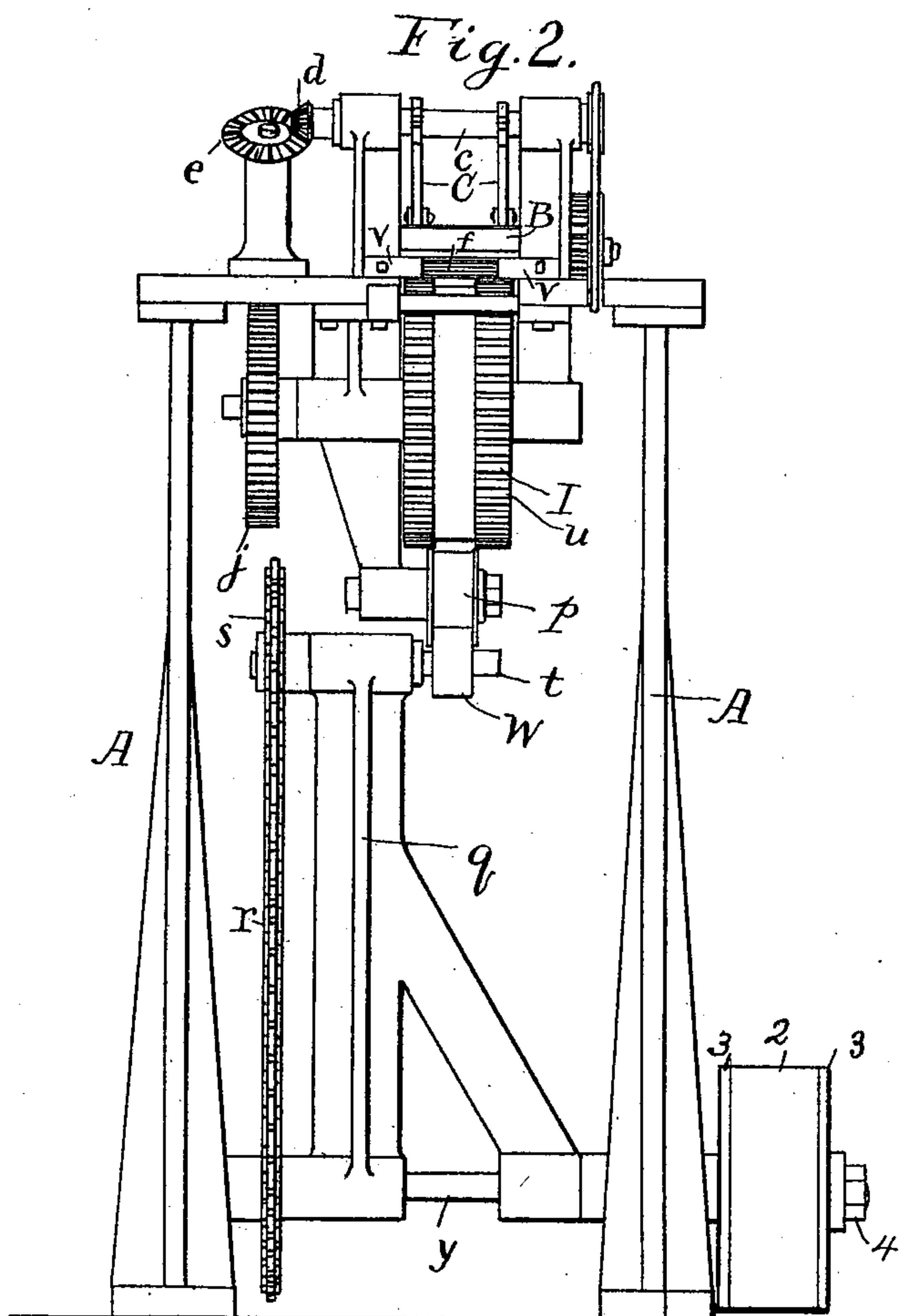
(No Model.)

2 Sheets—Sheet 2.

C. F. SCAMMAN & C. L. & E. C. FARRAR.
MACHINE FOR FORMING AND COILING MATCH SPLINTS.

No. 592,741.

Patented Oct. 26, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES F. SCAMMAN AND CARROLL L. FARRAR, OF DEERING, AND ELLERY C. FARRAR, OF BATH, MAINE.

MACHINE FOR FORMING AND COILING MATCH-SPLINTS.

SPECIFICATION forming part of Letters Patent No. 592,741, dated October 26, 1897.

Application filed January 16, 1897. Serial No. 619,468. (No model.)

To all whom it may concern:

Be it known that we, CHARLES F. SCAMMAN and CARROLL L. FARRAR, of Deering, in the county of Cumberland, and ELLERY C. FARRAR, of Bath, in the county of Sagadahoc, State of Maine, citizens of the United States, have invented a certain new and useful Improvement in Machines for Forming and Coiling Match-Splints; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to a machine for forming and coiling match-splints in one continuous operation. Heretofore it has been common to form the match-splints, dry them, and thereafter place them in the hopper of a coiling-machine and allow them to drop into the grooves of a toothed cylinder, from whence they were taken by the coiling-belt and wound into a coil ready to be dipped. When splints are made by this process, they have to be dried in bulk, and in the process of drying many of them are liable to get warped, so that they will not feed freely through the hopper of the coiling-machine, and consequently an imperfect coil will be made.

The purpose of our present invention is to combine the coiling-machine with a splint-making machine of that class wherein a veneer strip is fed by suitable feed-rolls over a stationary knife, the splints being cut from the strip by a cutting-block, which reciprocates against the edge of the knife, such a machine being shown and described in Patent No. 521,734, to C. F. Scamman, dated June 19, 1894, and other patents to the same inventor. The two machines are combined in such a manner that the splints as fast as they are cut will be positively and intermittently conveyed to the grooved cylinder of the coiling-machine, the cylinder being rotated so that one of its grooves comes beneath the knife as each splint is cut. By combining these two machines in this manner the splints are assembled in the coil without handling, the coil is filled completely full of splints without any skips, and the drying of the splints and the whole operation of manufacturing matches is shortened and cheapened.

We illustrate our invention by means of the accompanying drawings, in which—

Figure 1 shows a side elevation of a machine constructed according to our invention. Fig. 2 is a front elevation of the same, and Fig. 3 is a central vertical section showing the parts in detail and showing the toothed cylinder of the coiler at a lower level than it is shown in the other views.

A represents the frame of the machine, and A' is the bed thereof. E E are the feed-rolls; c, the main shaft; C, the pitman-rods, by which the reciprocating cutting-block B is operated. D is the fixed knife, and F represents the veneer strip. These parts are common to the toothpick-machine described in numerous patents to Scamman and need no further description. As the splints are cut from the veneer strip they are conveyed positively and intermittently to the grooves of the toothed cylinder I of a suitable coiling-machine, the cylinder being timed to turn so that a groove will be presented to receive a splint as each splint is cut.

The means for conveying the splints from the edge of the knife to the grooves of the cylinder are connected with and operated by the mechanism which reciprocates the block, and as herein shown we make use of the block itself for this purpose, causing it to force each splint as fast as formed downward through frictional guides v, which are bolted adjacent to the sides of the knife on which the splints fall, the guides extending a short distance from the ends of the knife, leaving the cutter open.

The position of the guides with reference to the knife is such that the splint may be readily forced down between the knife and the guides, but there will be sufficient friction to prevent the splint from falling by gravity. Thus when the machine is in operation the space from the cutting edge of the knife to the grooves will be full of splints and as each splint is cut the whole line of splints will be driven positively downward the width of a single splint, forcing the lower one into the groove. In this connection it is important to have the space between the edge of the knife and the groove exactly divisible by the number of splints, and it is also important to have the knife as narrow as possi-

ble; so that there will be as few splints as possible on the way to the groove. If this space is too great, any small variation in the thickness of the veneer will be multiplied 5 and will be liable to throw the machine out of adjustment.

Motion is imparted to the cylinder I by a worm *i*, which engages a gear *j* on the outer end of the shaft *i'*, on which the cylinder I is 10 mounted. The worm is secured to the lower end of a shaft *h*, and on the upper end of the shaft is a bevel-gear *e*, engaging another bevel-gear *d* on the end of the main driving-shaft *c*.

As before stated, the connection between 15 the driving-shaft and the cylinder I is such that the grooves come under the knife as fast as the splints are cut. The cylinder I forms a part of a coiling-machine, which may be of any well-known construction.

As here shown, the coiling-belt *o* is un- 20 wound from a spool *n* and is led over a pulley *p*, and thence around the annular groove formed in the cylinder I, and thence it is wound on the coiling-spool W, secured on the shaft *t*. The upper belt *e* is unwound from a 25 spool *m*. Thence it passes over a pulley *m'*, located near the surface of the cylinder and just ahead of the knife. From this point it passes to the coil, it and the belt *o* holding the splints between them and transferring 30 them from the cylinder I to the coil. The coiling-spool W is rotated by means of a sprocket-wheel *s*, secured to the end of the shaft *t*, said shaft being journaled in the upper end of the rocking frame *q*, the lower end 35 of the frame being pivoted to a shaft *y*, having a driving-pulley 2 loosely mounted thereon.

A sprocket-wheel *s'* connects with the sprocket-wheel *s* by means of a chain *r* and 40 imparts power to drive the coiling-spool. Friction-plate 3 3 and a binding-nut 4 act against the pulley 2 and form a frictional connection by which the shaft *y* is turned.

Means are provided for keeping the coil 45 pressed against the cylinder I, and as here shown we rely on the friction between the shaft *y* and the frame *q*, by which as the shaft turns the coil is kept pressed against the cylinder.

50 It will be seen by the construction of our machine that the splints as fast as they are cut are forced by positive mechanism into the grooves of the cylinder and that it is practically impossible for the splints not to 55 fill the grooves as they come along. The result is that the coil is entirely full, the splints can be quickly dried, owing to the fact that they do not touch each other, and they can be put through the entire process without 60 any handling.

The machine as we construct it is remarkably compact and cheaply built, and as the cutting-block runs at a high rate of speed the capacity of the machine is very great.

65 We are aware that a coiling and cutting machine somewhat similar in construction to our

machine has been patented where the veneer strip is run under a cylinder provided with knives in its periphery, the line of splints being pushed along by a continuous motion 70 against the periphery of a grooved cylinder. In this device we consider that the feed of the splints being continuous tends to cramp the splints against the surface of the cylinder between the grooves and causes them to 75 crowd in their guides and is apt to cause the machine to put two splints into one groove and to entirely skip others. In our machine, on the contrary, each splint is driven positively into its groove by the action of the 80 block or plunger, the groove being in position to receive the splint when the plunger comes down.

We claim—

1. In a machine for making and coiling 85 match-splints, the combination of a fixed cutting-knife, feed-rolls for feeding a veneer strip over said cutting-knife, a cutting-block operated by reciprocating mechanism acting against the edge of said knife for separating 90 the splints from the veneer strip, a splint-carrier movable beneath said knife having recesses to receive the splints, said splints being intermittently forced into said recesses by means operated by said reciprocating 95 mechanism as fast as they are formed and a coiled belt connecting with said splint-carrier for coiling the splints.

2. In a machine for making and coiling 100 match-splints, the combination of a fixed cutting-knife, feed-rolls for feeding a veneer strip over said cutting-knife, a splint-carrier movable beneath said knife having recesses to receive the splints, guides for conducting the splints from the edge of said knife to said 105 carrier, a reciprocating cutting-block for forming the splints and forcing them intermittently into the recesses of said carrier and a coiling-belt connecting with said splint-carrier for coiling the splints. 110

3. In a machine for making and coiling 115 match-splints, the combination of a fixed cutting-knife, feed-rolls for feeding a veneer strip over said cutting-knife, a splint-carrier movable beneath said knife having recesses to receive the splints, frictional guides adapted to hold the splints in suspension for conducting the same from the edge of the knife to said carrier, a reciprocating cutting-block 120 for forming the splints and forcing them intermittently into the recesses of said carrier and a coiling-belt connecting with said splint-carrier for coiling the splints.

In witness whereof we hereunto set our hands in the presence of witnesses.

CHARLES F. SCAMMAN.
CARROLL L. FARRAR.
ELLERY C. FARRAR.

Witnesses:

S. W. BATES,
JOSEPH M. TROTT,
CHARLES A. CORLISS.