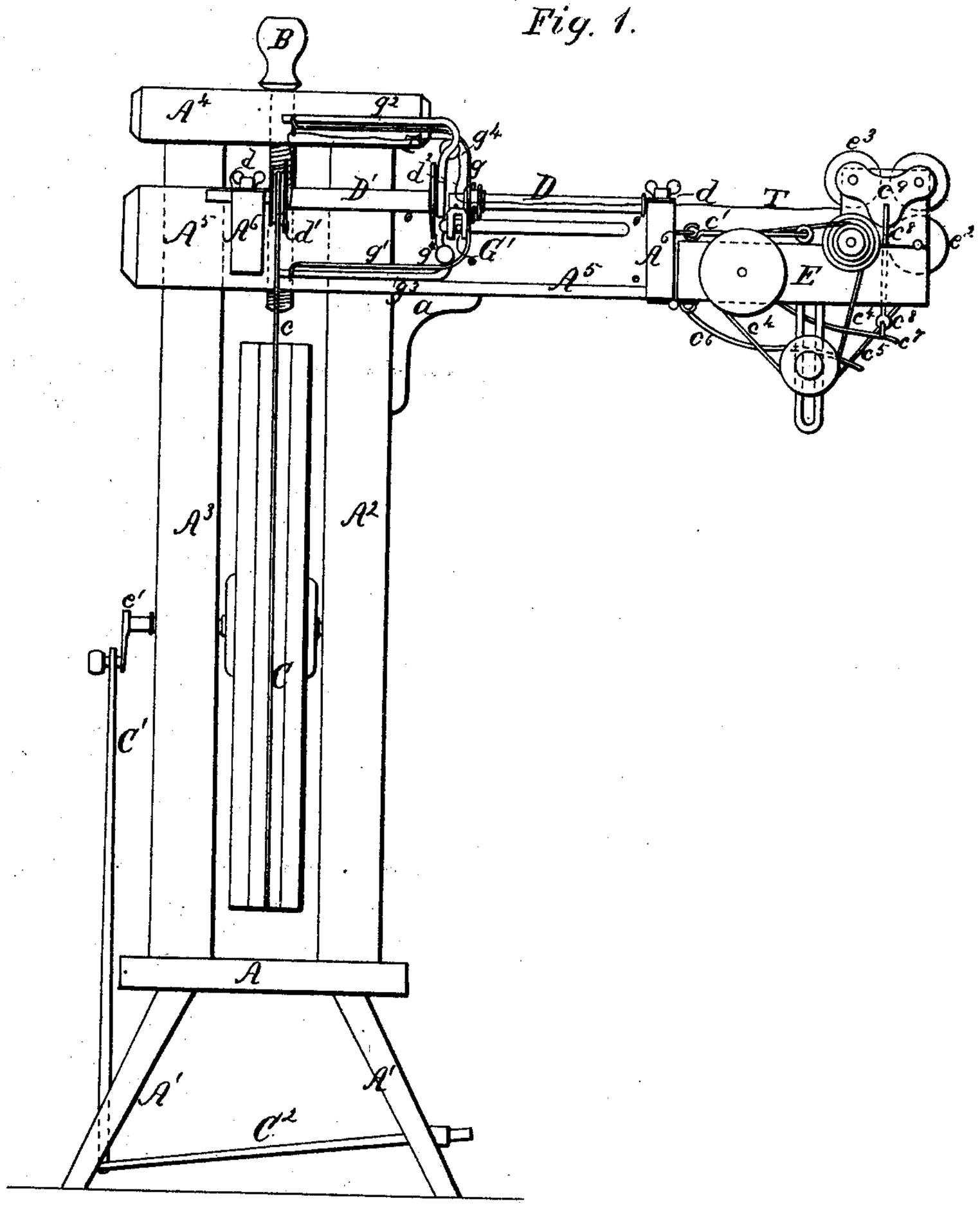
Sheet 1. 2 Sheets.

F. Voegth.

Spinning Mach.

No. 69,728. Patented Oct. 8, 1867.

Fig. 1.



Witnesses.

Henry Flad

Chas. H. Boyle

Inventor.

Franz Voegth

By his Attys

Dyrenforth & Co

Sheet 2. 2 Sheets.

F. Voegth.

Spinning Mach.

No. 69,728. Patented Oct. 8, 1867.

Fig. 2.

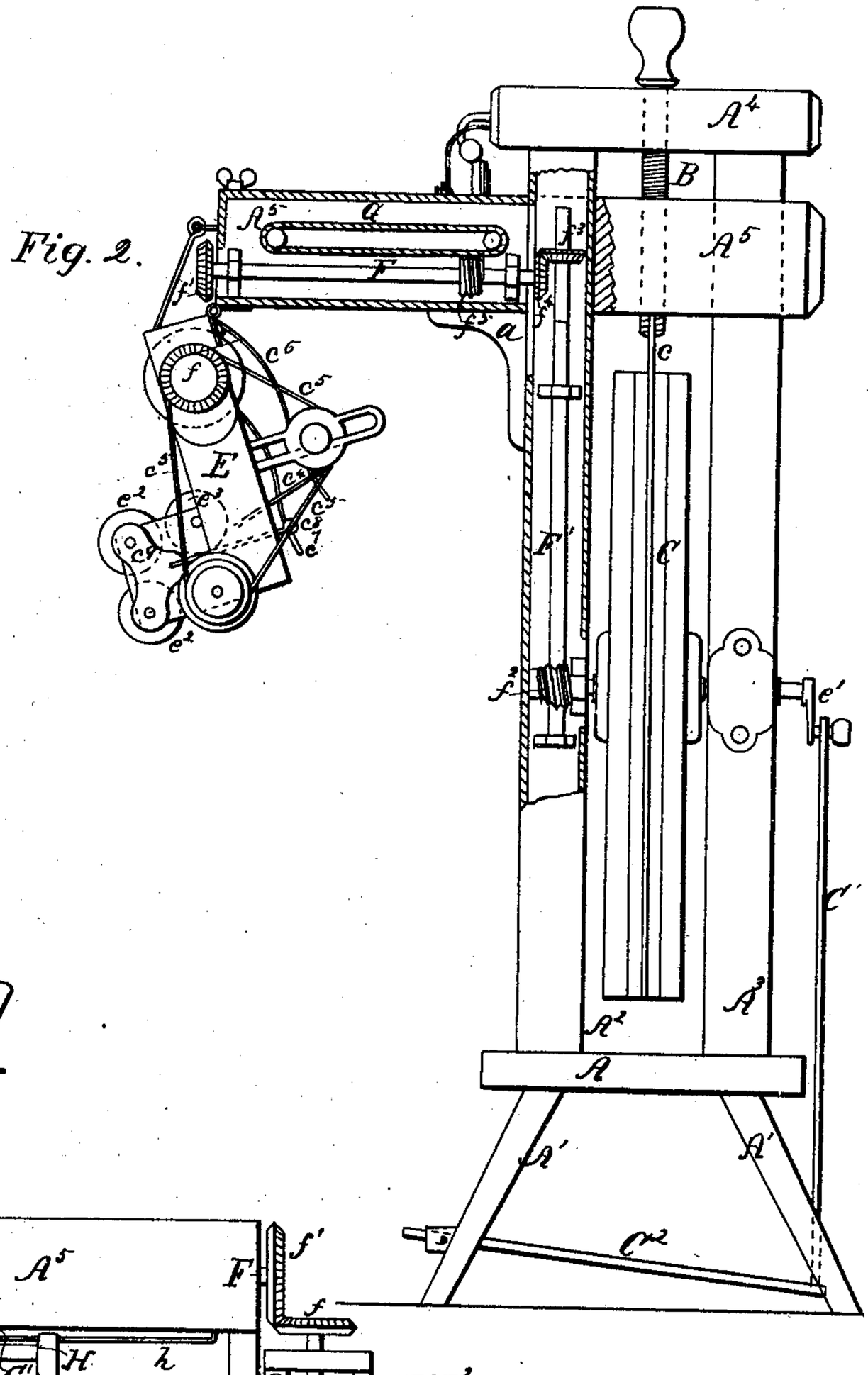
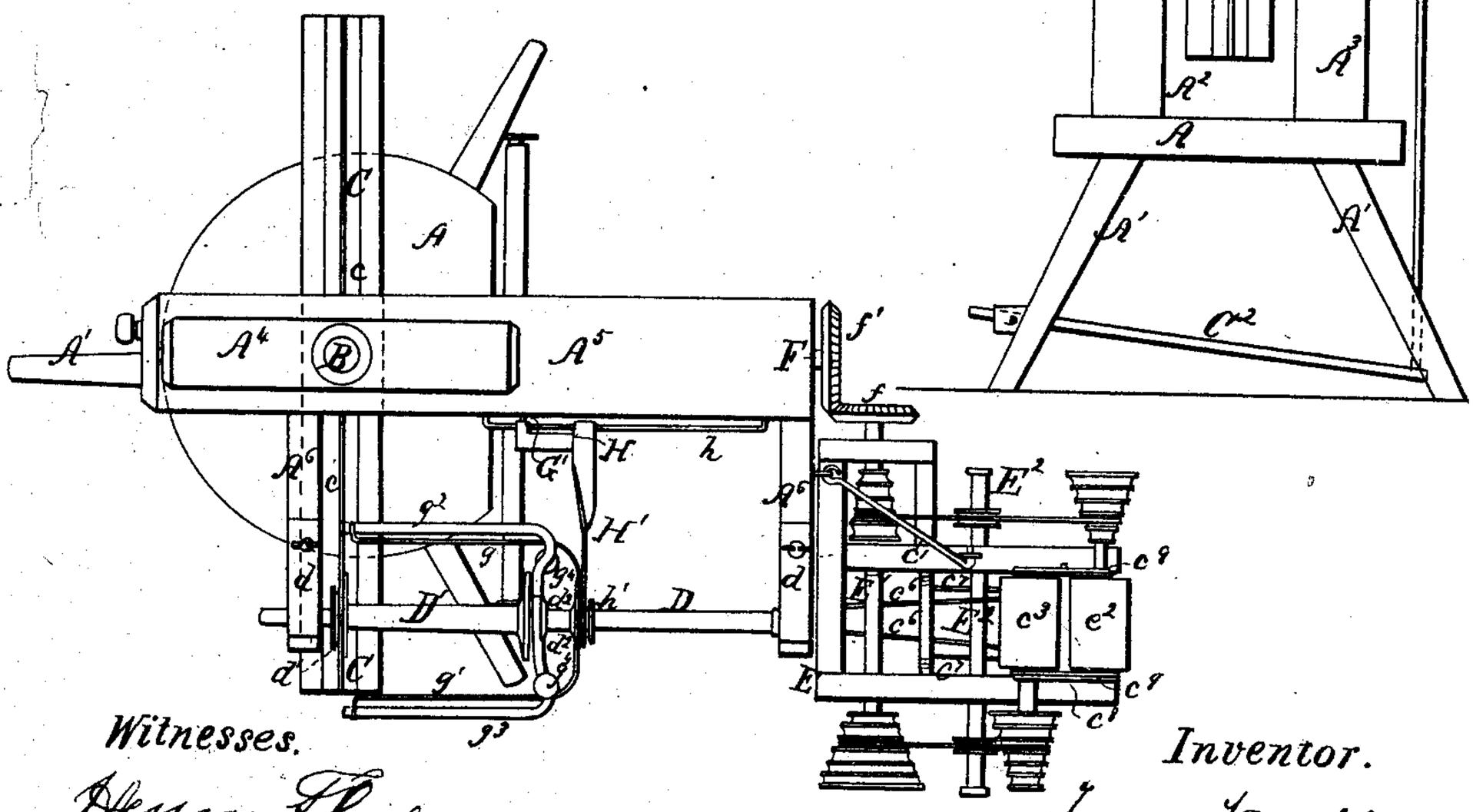


Fig. 3.



Witnesses.

Henry Flad

Chas. H. Boyle.

Inventor.

Franz Voegtle

By his Atty's

M. Randolph & Co

United States Patent Office.

FRANZ VOEGTLI, OF MONTGOMERY CITY, MISSOURI.

Letters Patent No. 69,728, *dated October* 8, 1867.

IMPROVEMENT IN SPINNING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, FRANZ VOEGTLI, of Montgomery City, in the county of Montgomery, and State of Missouri, have invented a new and useful Improvement in Spinning Machines; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The subject of this invention is a machine in which the flax, wool, or other fibrous article to be spun is fed into a double set of revolving rollers driven at different degrees of speed, the said rollers feeding the unspun material into a hollow spindle, from which the thread is conveyed, through an aperture in its side, to the reel or bobbin, upon which it is wound by automatic machinery. The whole apparatus may be operated by a treadle, the same as that used upon old spinning-wheels.

To enable those skilled in the art to construct and use my improved machine, I will proceed to describe its construction and operation.

Figure 1 of the drawings is a front elevation of the machine.

Figure 2 is a rear elevation of it, showing a portion of the framework broken out, so as to disclose the machinery within it.

Figure 3 is a top plan of the machine.

A shelf, A, resting on short legs, A^1, supports the entire machine. Erected upon this shelf are two vertical posts, A^2 A^3, the top ends of which are secured in their relative positions by a cross-beam or cap, A^4, immediately below which there is a sliding-beam, A^5, guided by the two vertical posts. The sliding-beam A^5 is held up in its proper position by means of the screw B, which serves as a tightener for the belt *c* that transmits power from the driving-wheel C to the spindle which is attached to the sliding-beam. A brace, *a*, secured to the bottom of the extending end of the beam A^5, rests against the exterior edge of the post A^2, and serves to support the aforesaid beam. The driving-wheel C has its bearings in the posts A^2 A^3, and a crank, e^1, attached to one of its journals is connected, by means of the pitman C^1, to the treadle C^2, which has its bearings in the legs A^1. There are two short projecting arms, A^6, fixed to the beam A^5, as is clearly shown in fig. 3, which furnish bearings for the hollow spindle D. Spring-followers *d* press upon the journals of the spindle and keep them in their proper positions on their bearings, yet may easily be thrown aside when it is necessary to lift the spindle out of its bearings, which has to be done every time a new spool, D^1, is to be placed upon the spindle. A groove, d^1, turned in the end part of the spool, furnishes a pulley for the application of the driving-belt *c*, and the friction of the spool upon the spindle causes the latter to revolve with it. A roller-frame, E, is hinged to one of the arms A^6. This frame may be held up in a horizontal position, as is shown in fig. 1, by means of the hook c^1 which is secured to the frame A^6, or it may be dropped down, as is shown in fig. 2, by simply disengaging the said hook from the roller-frame. Each of these positions is adapted to a particular operation of the machine, as will be hereinafter more fully described. On the outer end of the frame E there are two pairs of rollers, e^2 and e^3, which are driven by means of the belts c^4 and c^5 from the counter-shaft E^1, which is also located upon the same frame. On each end of the counter-shaft E^1 there are cone-pulleys for the belts c^4 and c^5, and there are also corresponding cone-pulleys for these belts attached to the journals of the rollers e^2 and e^3. The general construction and arrangement of these cone-pulleys is such that the speed of the rollers may be either increased or diminished at pleasure, but the speed of the rollers e^3 will always be faster than that of the rollers e^2; and by the adjustment of the belts c^4 c^5 to different pulleys this difference of speed may be increased or diminished, for the purpose hereinafter explained. A tightener, E^2, forced down by the spring c^6, is placed on the belts c^4 c^5, so as to keep them always tight. The springs c^7 are attached to links c^8 that connect with the follower-plates c^9, in which the journals of the two top rollers find their bearings, and serve to hold the said rollers down upon the lower ones so tightly that the friction between the upper and lower roller of each set will cause the upper rollers to revolve with the lower ones. The driving-shaft E^1 receives its motion through the medium of the bevel cog-wheel *f*, (on its outer end,) which gears into the bevel cog-wheel f^1 on the end of the horizontal shaft F which is placed within the beam A^5. As it is not necessary to run the rollers when the frame E is thrown down, as is shown in fig. 2, the act of throwing the said frame down from its horizontal position disconnects the wheel *f* from the wheel f^1. An endless screw, f^2, on the axle of the driving-wheel, and within the post A^2,

gears into and communicates motion to the vertical shaft F', also within the said post. The top end of this shaft should be square, so as to allow the bevel cog-wheel f^3 which is placed thereon to slide up and down with the beam A^5, and at all times gear into the bevel-wheel f^4, so as to transmit motion to the shaft F. As only a slow feed-motion is to be communicated to the rollers, the combination of endless screw, bevel-wheels, and shafts, herein described, is the most simple and desirable that can probably be employed, though the shafts F and F' might be easily placed outside of the timber-work, with slight alterations and little inconvenience. An endless screw, f^5, on the shaft F, communicates a continuous motion to the endless chain G, shown inside of the beam A^5 in fig. 2. A traversing-pin, G', attached to this endless chain, extends a short distance in front of the beam A^5, and connects with and transmits to the sliding-carriage H a reciprocating motion. The sliding-carriage H runs upon a track or rod, h, attached to the beam A^5. An arm, H', attached to the carriage H, extends therefrom to the clutch h' upon the spindle, and the said clutch receives a longitudinal reciprocating motion, imparted to it by the said carriage H, which is driven by the pin G', as aforesaid. There are two feeder-rods, g g', attached to the clutch h', that extend outward therefrom a sufficient distance to embrace the thickness of the bobbin to be wound between their horizontal arms, as shown in fig. 1. The outer ends of these feeder-rods are guided by rods g^2 g^3, attached to the spindle near the inner end of the spool, and revolved with it. The spindle is hollow from its forward end to near the spool, where a transverse hole, d^2, opens communication from the interior orifice to both outsides of the spindle. These communications with the exterior of the spindle are made in an axial plane coinciding with that in which the perpendicular portions of the rods g^2 g^3 leave the spindle, so that the threads passing out of the orifices d^2 may pass over the grooved sheaves g^4 attached to the guides g^2 g^3. The direction of the thread is shown by the red line T in fig. 1, and the reciprocating motion of the feeders g g', as already described, is such as to wind the thread regularly around the spool from one end to the other as the feeder or flyer is revolved.

The operation of a machine constructed as above described is as follows: The loose flax, wool, cotton, or other article to be spun into thread, is to be fed by the operator (who stands with one foot upon the treadle) into or between the rollers e^2, and from thence it passes through between the rollers e^3, and thence through the hollow spindle, by the revolution of which it is properly spun, and is finally carried out of the spindle through the aperture d^2 over the sheave g^4, through an eyelet or hook on the outer end of the feeder g or g', and from thence it is wound around the spool D'. As the rollers e^3 revolve more rapidly than the rollers e^2, the unspun material is pulled out into an even mass between the said rollers. This mass may be made of the proper size for any required size of thread by reducing or increasing the speed of the rollers, as already described. In the operation of spinning the roller-frame will be held up in its horizontal position, as shown in fig. 1, but if it is desired to twist two threads already spun together, this part of the machine may be dropped down, as shown in fig. 2, when the threads to be twisted together may be fed directly into the hollow spindle, after which the rest of the operation will be as before.

Having described my invention, what I claim, is—

1. The combination and arrangement of the parts F, F', f, f', f^2, f^3, f^4, and G, substantially as and for the purpose described.

2. The automatic feeder H H', G G', and g g', to distribute the threads upon the spool D', substantially as set forth.

3. The general combination of all the parts as shown, substantially as and for the purpose set forth.

FRANZ VOEGTLI.

Witnesses:

GEO. SUELL,

M. RANDOLPH.