

**No. 704,710.**

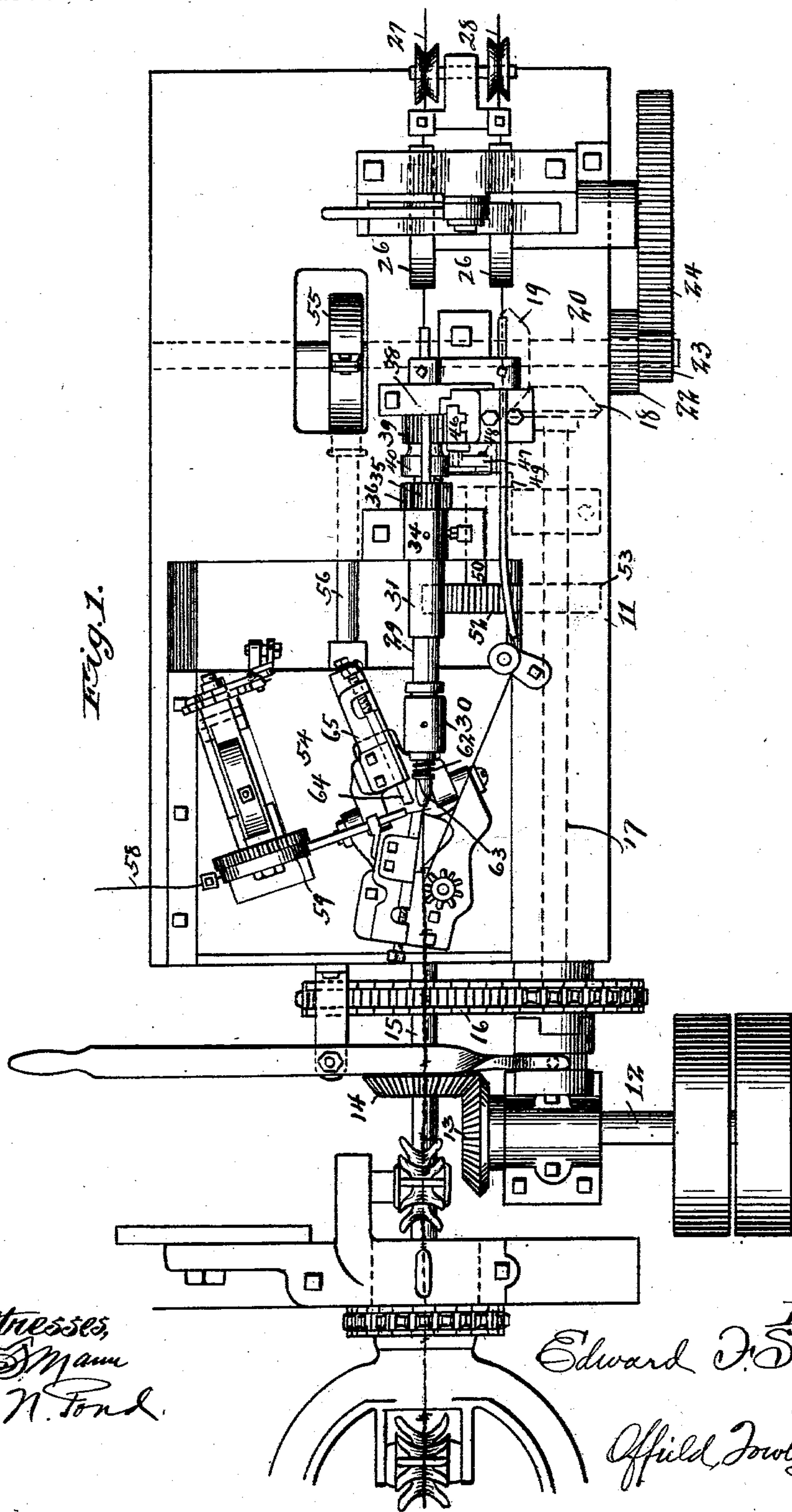
**Patented July 15, 1902.**

**E. F. SHELLABERGER.**  
**BARBED WIRE MACHINE.**

(Application filed Mar. 27, 1902.)

(No Model.)

**7 Sheets—Sheet 1.**



Witnesses,  
J. Mann  
D. H. Ford.

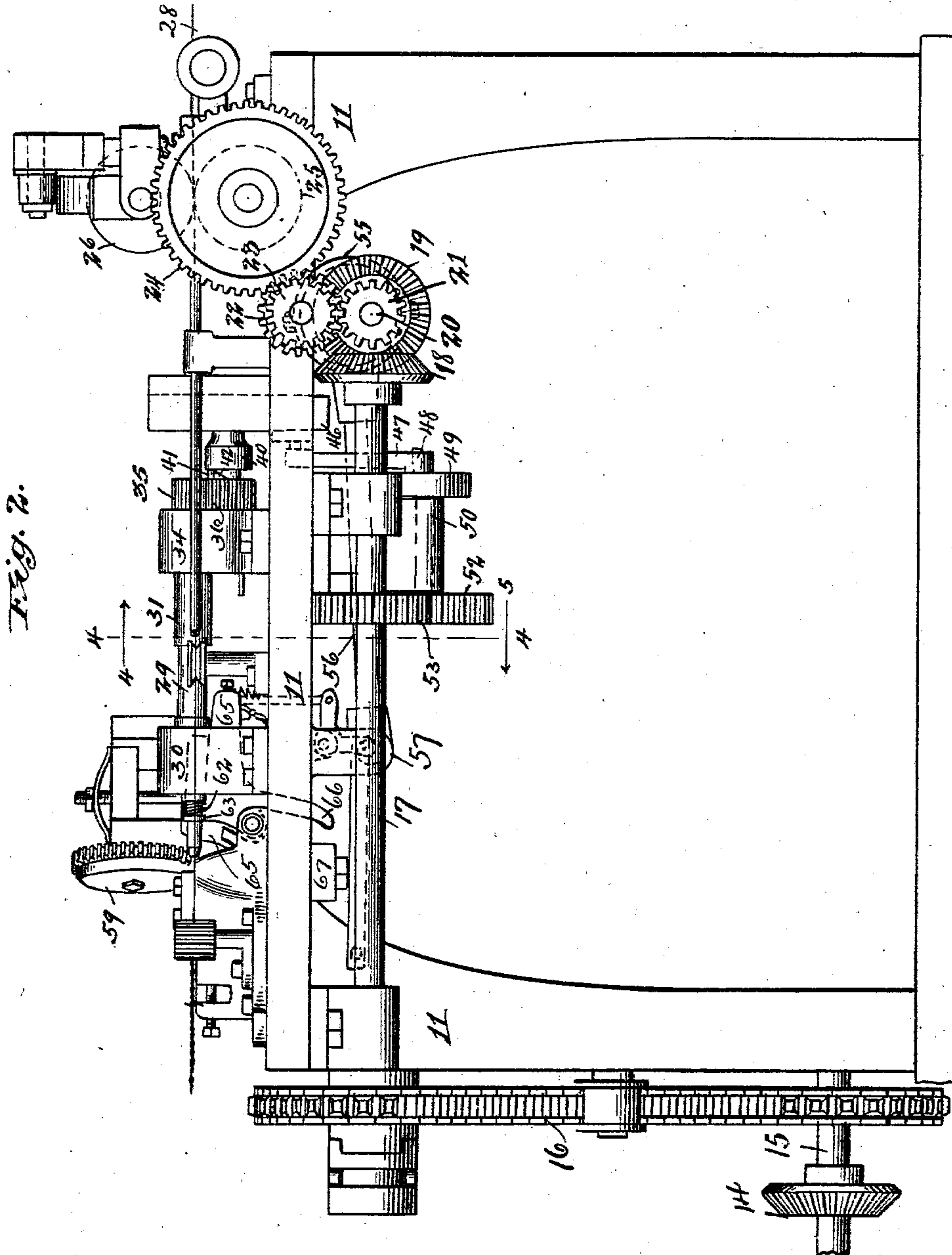
Inventor,  
Edward J. Skellabarger,  
By  
Offield, Towle & Livingston  
Attys.

E. F. SHELLABERGER.  
BARBED WIRE MACHINE.

(Application filed Mar. 27, 1902.)

(No Model.)

7 Sheets—Sheet 2.



Witnesses,  
J. S. Mann,  
S. W. Ford.

Inventor,  
Edward F. Shellabarger  
By Offield, Toole & Livingston  
Attys

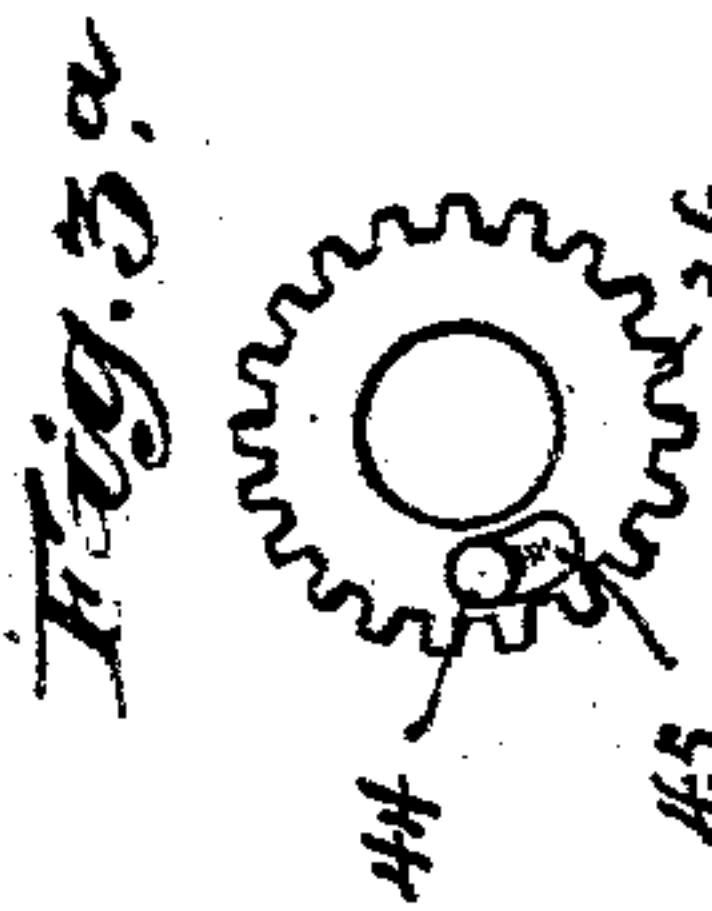
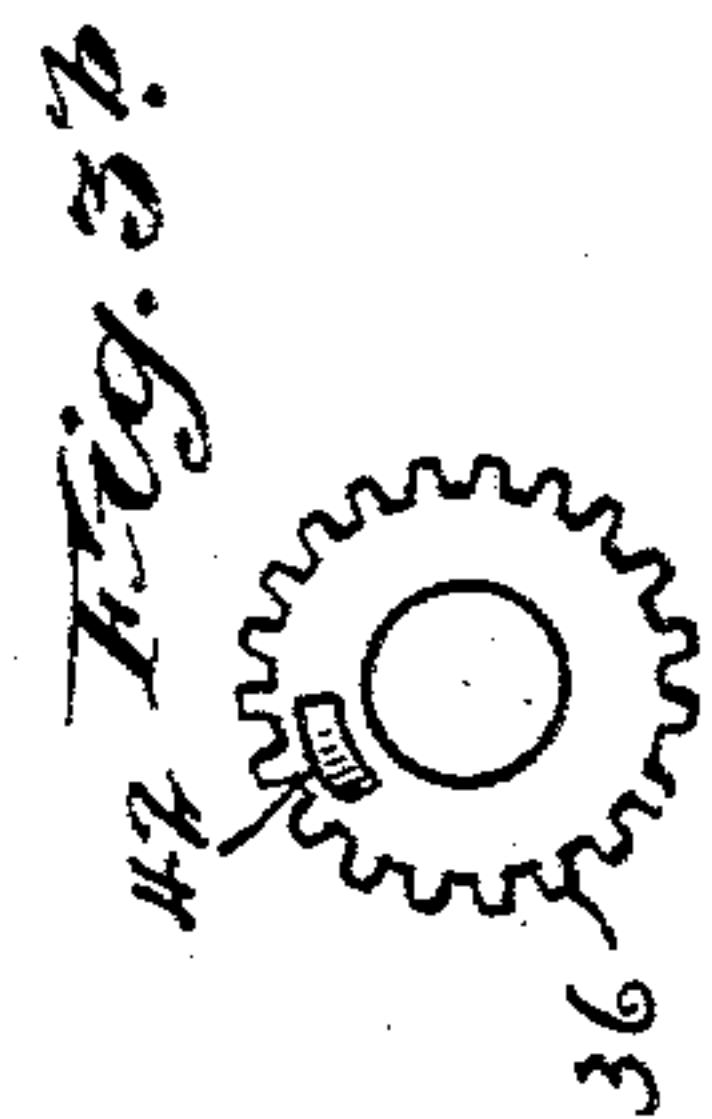
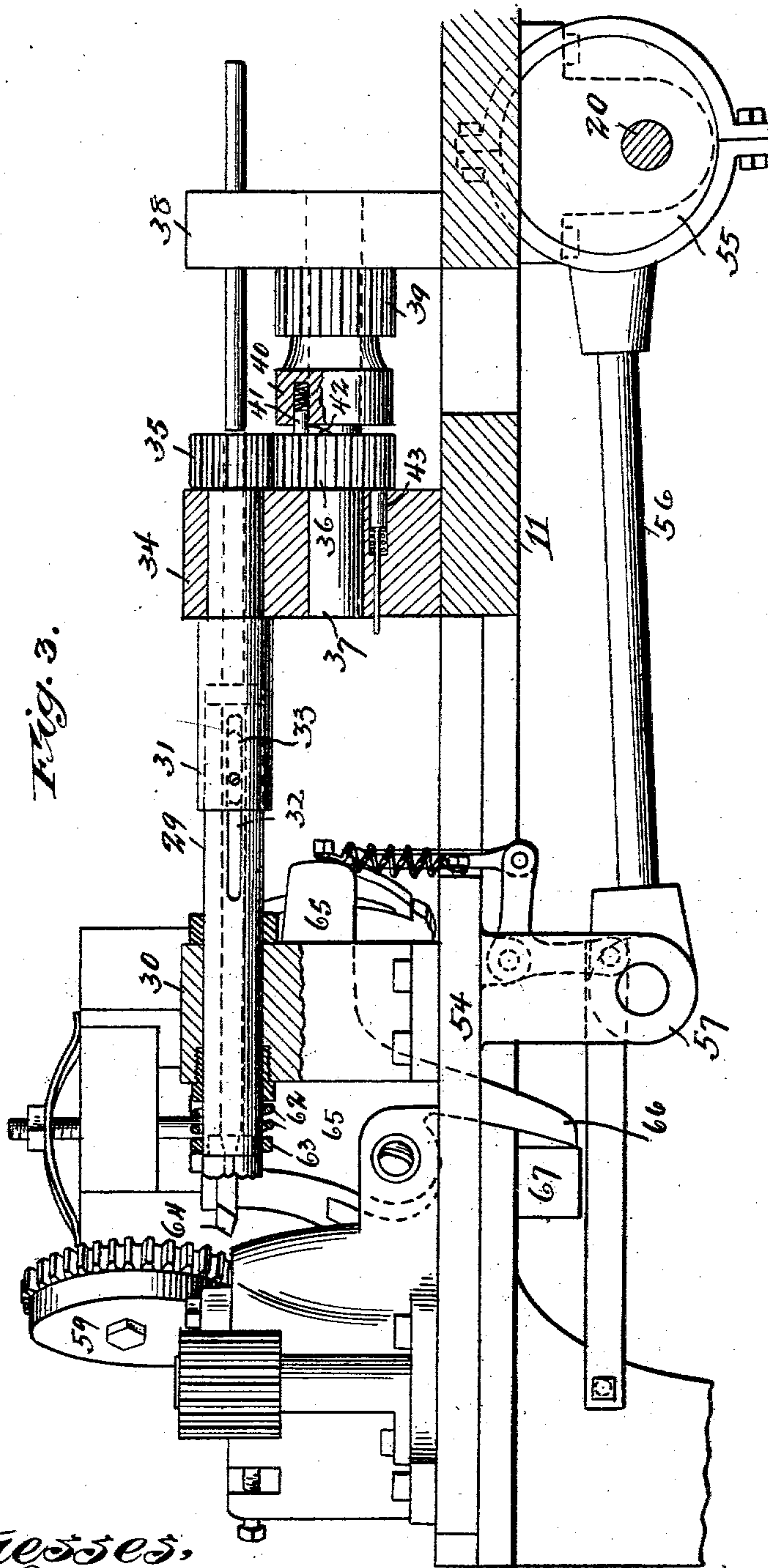


E. F. SHELLABERGER.  
BARBED WIRE MACHINE.

(Application filed Mar. 27, 1902.)

(No Model.)

7 Sheets—Sheet 3.



Witnesses,  
J. J. Mann,  
S. N. Pond.

Inventor,  
Edward F. Shellabarger,  
By Offield, Towle & Lathrop  
Attys.

No. 704,710.

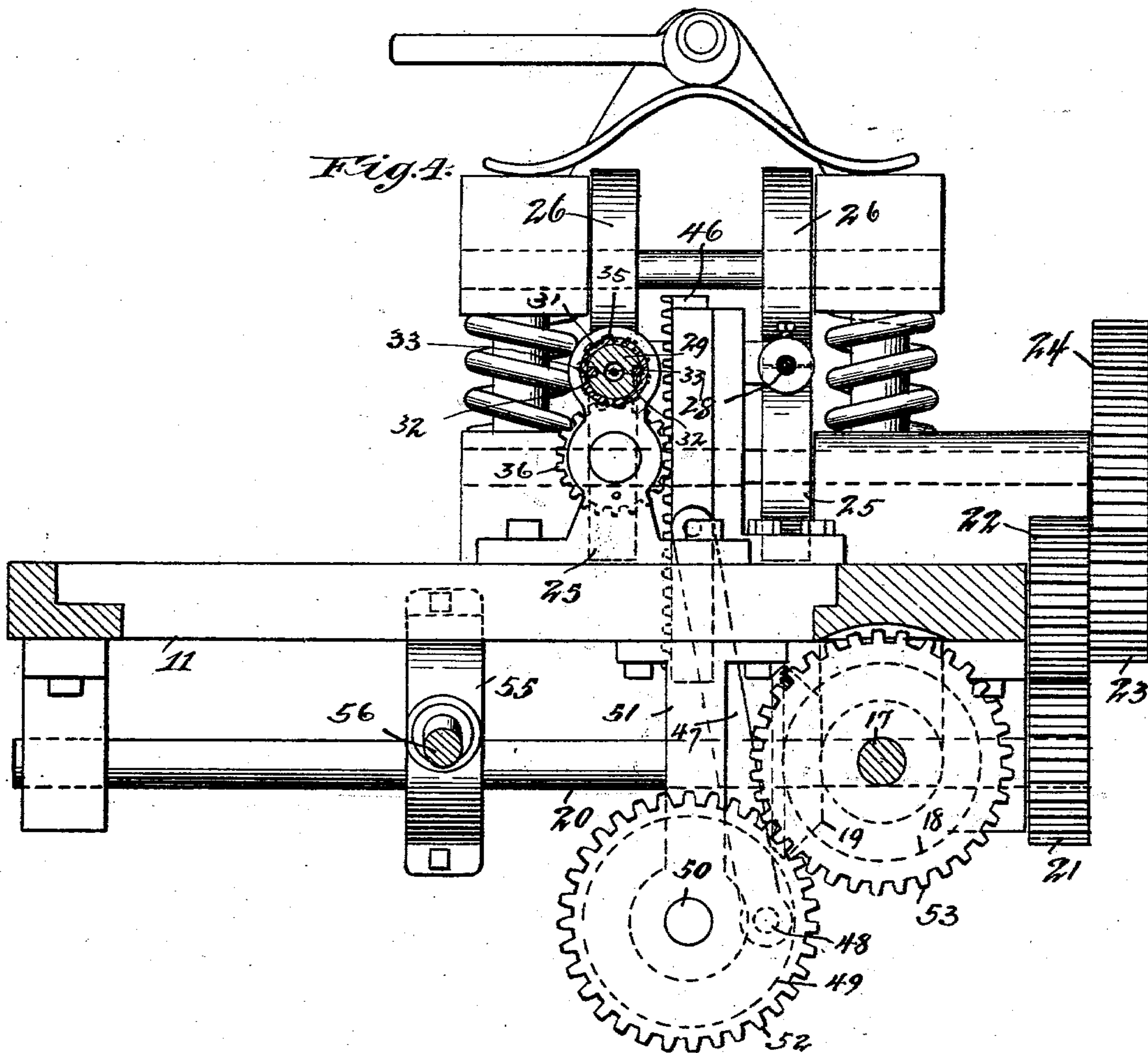
Patented July 15, 1902.

E. F. SHELLABERGER.  
BARBED WIRE MACHINE.

(Application filed Mar. 27, 1902.)

(No Model.)

7 Sheets—Sheet 4.



Witnesses,  
J. O. Mann,  
S. N. Ford.

Inventor,  
Edward F. Shellabarger  
By *Field, Fowler & Smith*  
Attys.

**No. 704,710.**

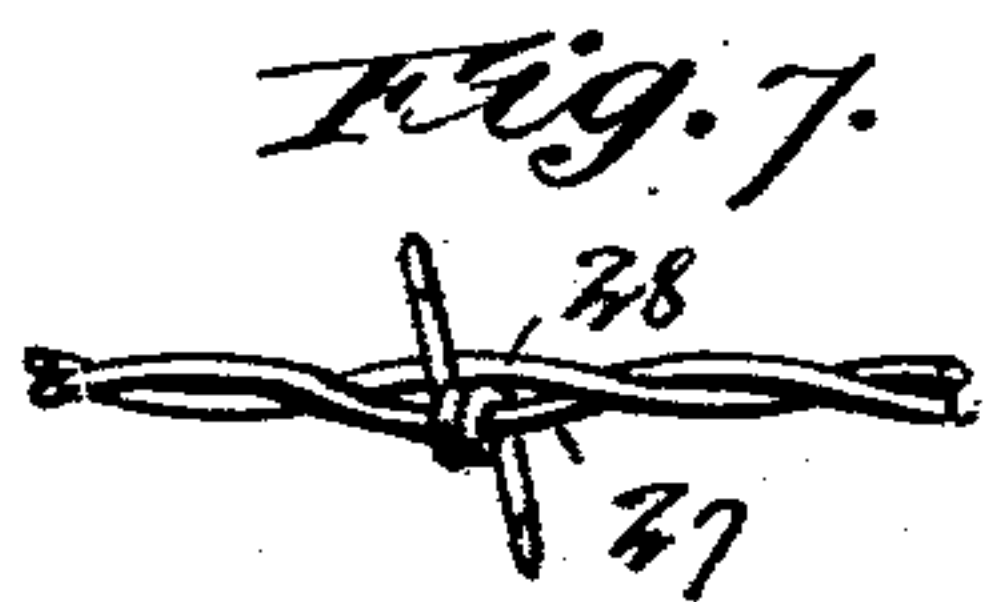
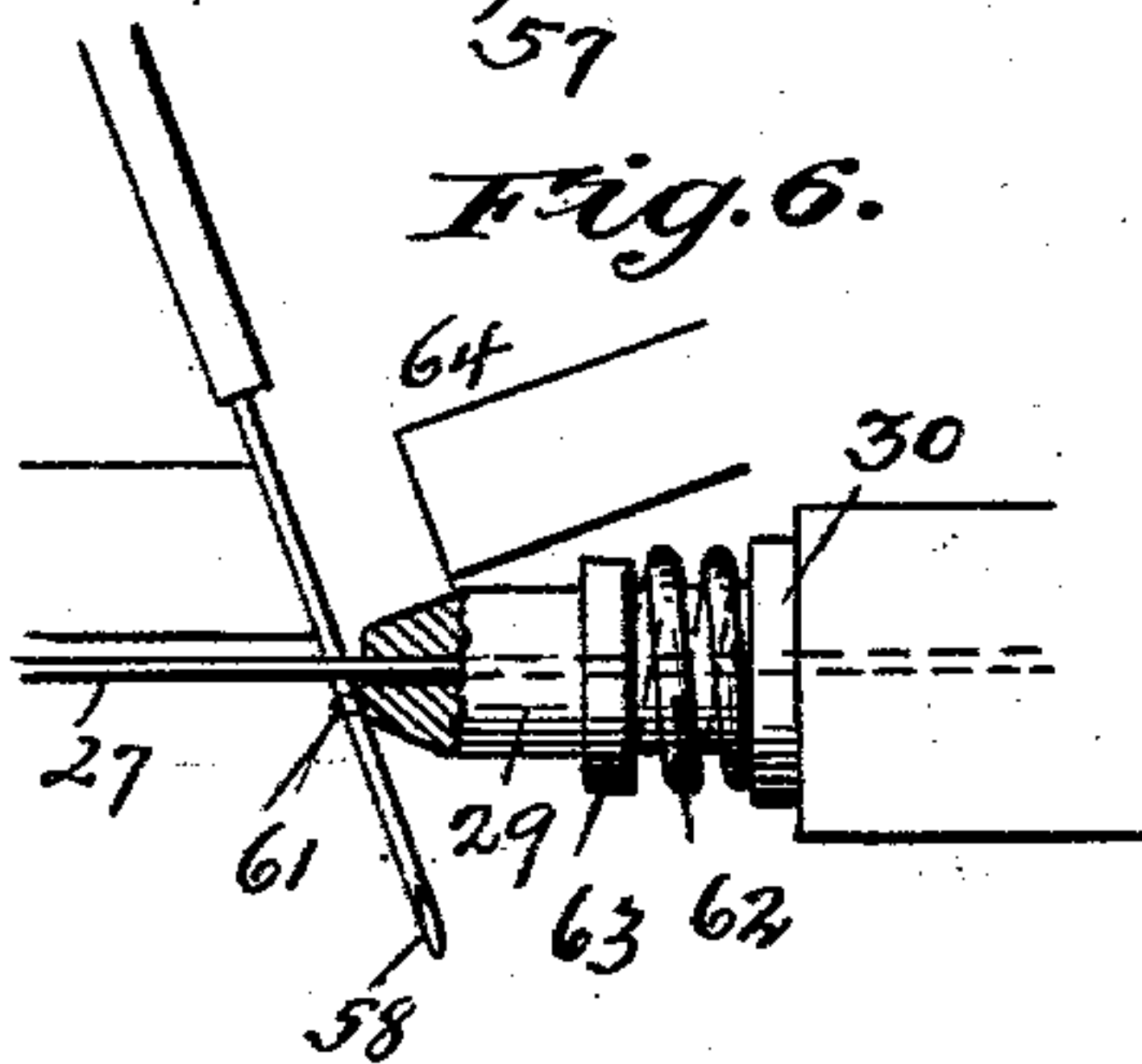
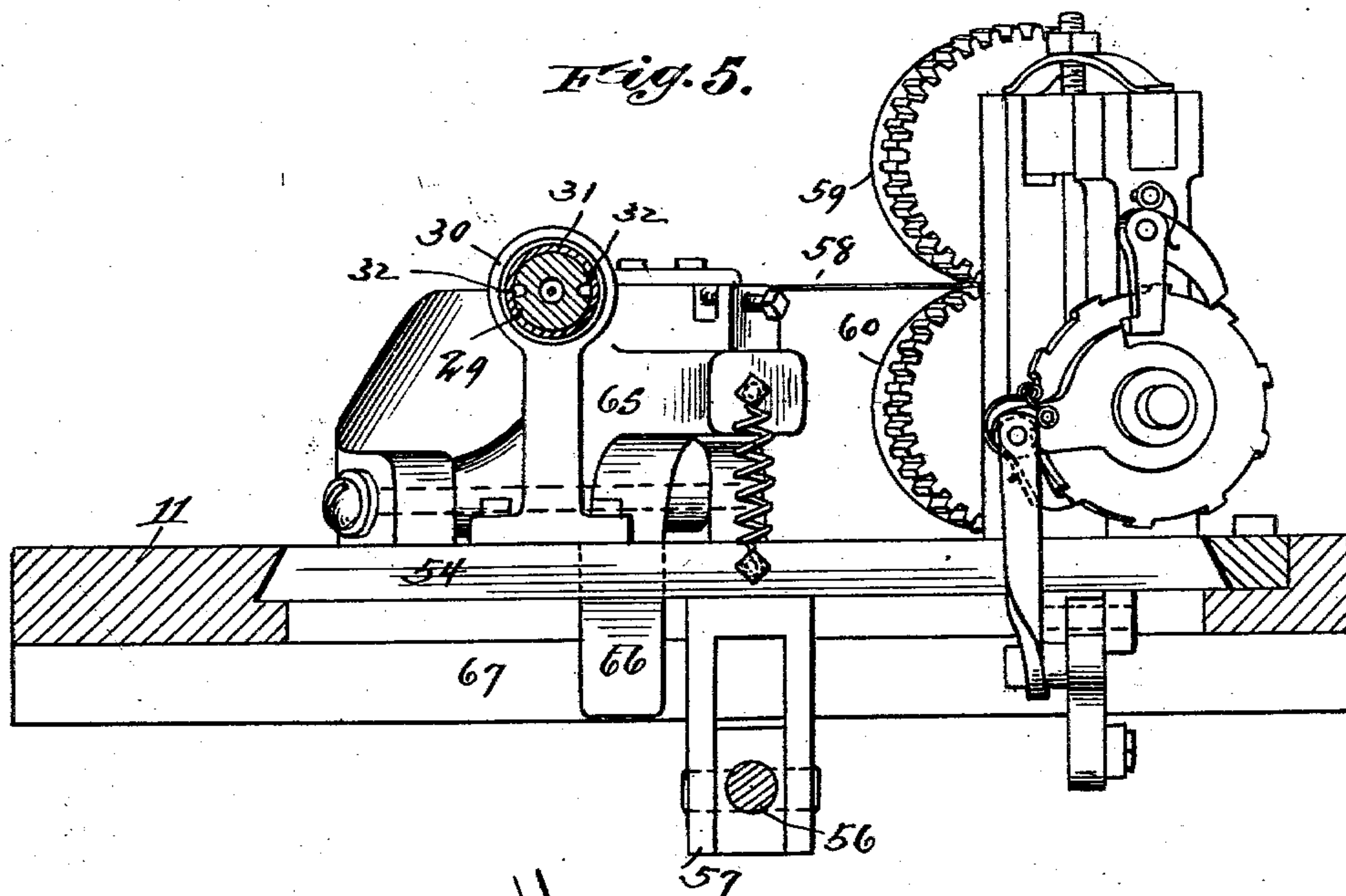
**Patented July 15, 1902.**

**E. F. SHELLABERGER.**  
**BARBED WIRE MACHINE.**

(Application filed Mar. 27, 1902.)

(No Model.)

**7 Sheets—Sheet 5.**



Witnesses,  
J. J. Mann,  
S. N. Pond.

Inventor,  
Edward F. Shellabarger  
Plymouth, Iowa & Linton, Mo.  
Attys.



**No. 704,710.**

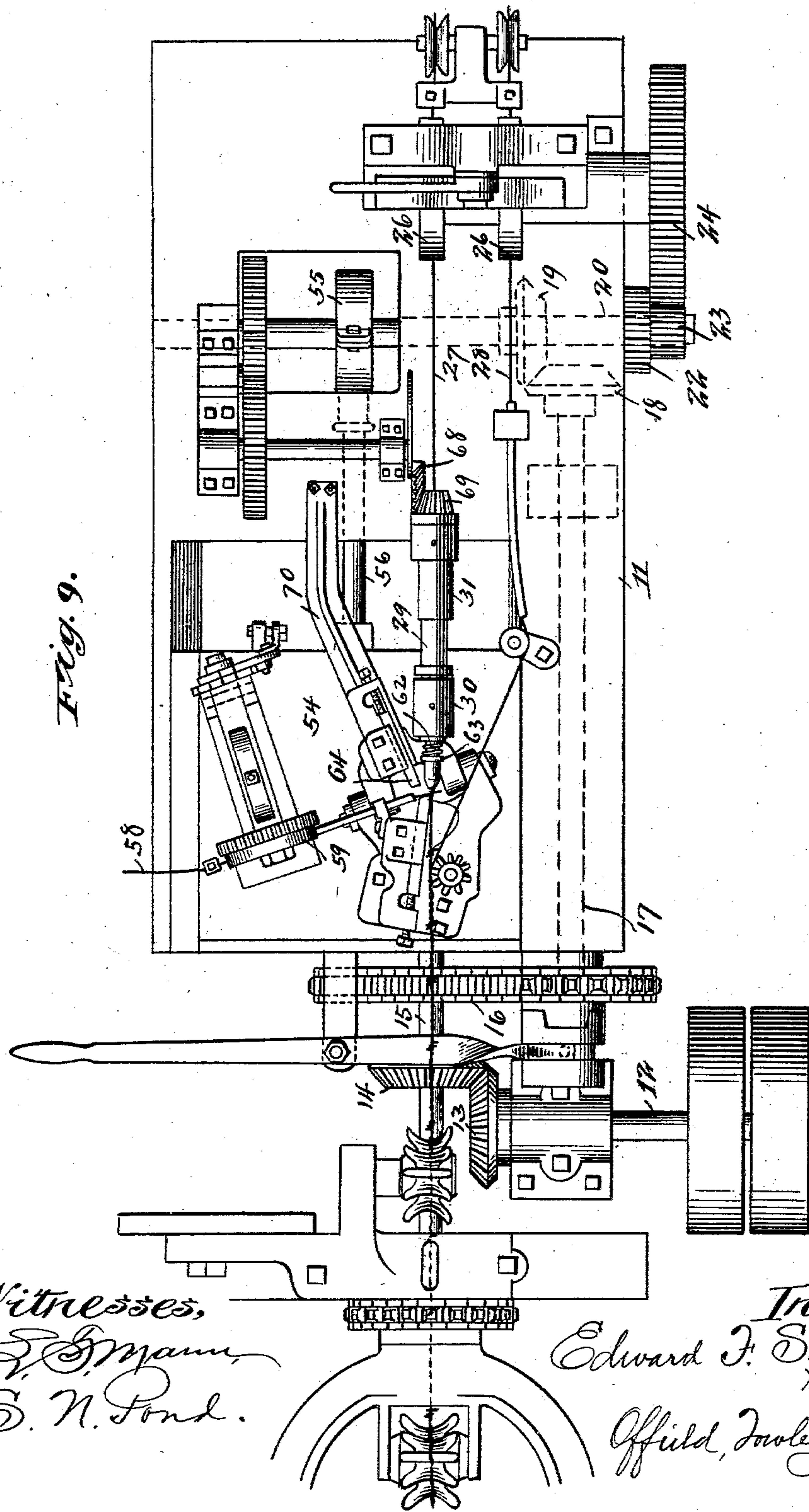
**Patented July 15, 1902.**

**E. F. SHELLABERGER.**  
**BARBED WIRE MACHINE.**

(Application filed Mar. 27, 1902.)

(No Model.)

7 Sheets—Sheet 6.



Witnesses, —  
J. S. Mann,  
S. N. Ford.

Inventor,  
Edward F. Shellabarger,  
By  
Offield, Inole & Luthman  
Atty's.

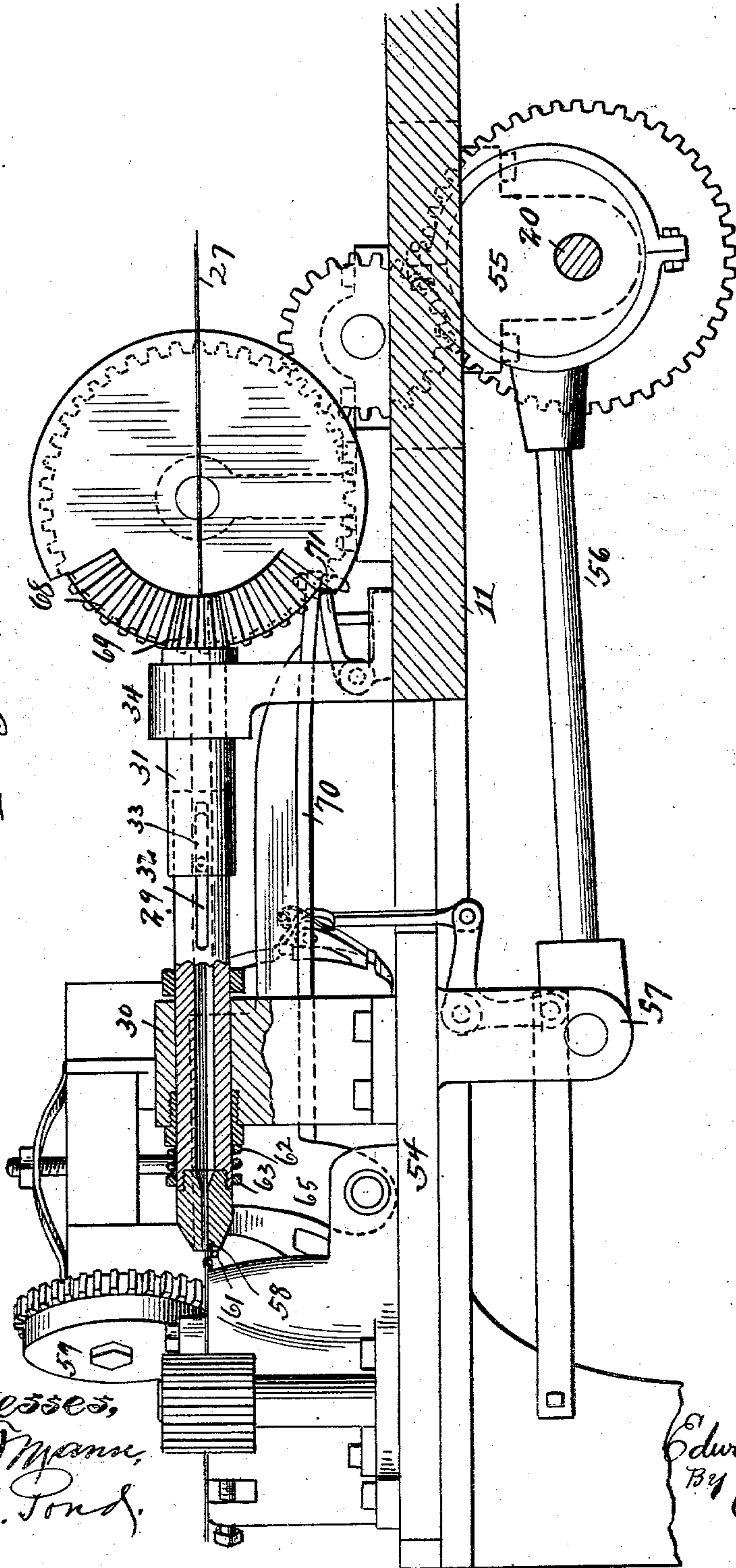
E. F. SHELLABERGER.  
BARBED WIRE MACHINE.

(Application filed Mar. 27, 1902.)

(No Model.)

7 Sheets—Sheet 7.

Fig. 10.



Witnesses,  
J. J. Mann,  
S. N. Pond.

Inventor,  
Edward F. Shellabarger,  
By  
Offield, Dowle &  
Linthicum,  
Attys.



# UNITED STATES PATENT OFFICE.

EDWARD F. SHELLABERGER, OF DEKALB, ILLINOIS.

## BARBED-WIRE MACHINE.

SPECIFICATION forming part of Letters Patent No. 704,710, dated July 15, 1902.

Application filed March 27, 1902. Serial No. 100,322. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD F. SHELLABERGER, of Dekalb, Illinois, have invented certain new and useful Improvements in Barbed-Wire Machines, of which the following is a specification.

This invention relates to barbed-wire machines, and has for its object to provide a machine of simple construction and easily operated, which will apply a double-pointed barb to a strand-wire and twist a fellow wire therewith and upon the barb.

The leading feature of the machine consists in such a construction, arrangement, and organization of the parts as will permit the twister-spindle which forms the barb to travel forwardly with the travel of the strand-wires during the formation of the barb, and thereby avoid any loss of time in the application of the barb. This is accomplished by providing a sliding bed which is caused to advance in the direction of the travel of the strand-wires during the formation of the barb and to retract after the barb is formed.

The particular features which I consider to be new and desire to secure by Letters Patent relate to the means for driving the spindle and for holding the same against any retrograde movement, whereby the twister-pin carried by the spindle is always maintained in proper position for the twisting operation. This spindle driving and controlling mechanism is also combined and associated with other elements of the machine, so that the table carrying the twister-spindle is moved in proper time and the spindle itself is guided and cushioned in a novel manner.

My invention will be hereinafter more fully described and particularly pointed out in the claims.

In the accompanying drawings I have shown in Figures 1 to 8, inclusive, the preferred form of construction and in Figs. 9 and 10 a slightly-modified construction.

In said drawings, Fig. 1 is a plan view of the machine complete except as to certain portions of the spooling mechanism, which form no part of my invention. Fig. 2 is a side elevation of the machine shown in Fig. 1, the spooling mechanism being entirely omitted. Fig. 3 is a longitudinal sectional elevation intended to show particularly the

gearing for driving the spindle and the means for actuating the table and feed mechanism for the wire from which the barbs are formed. Fig. 4 is a transverse sectional view taken on about the line 4 4 of Fig. 2 looking in the direction of the arrow 4. Fig. 5 is on the same line, but looking in the opposite direction. (See arrow 5.) Figs. 6, 7, and 8 are details, Fig. 6 showing a plan view of the spindle with its tip in section, the end of the knife or shear and the barbed-wire stock fed across the strand-wire, and showing its relation to the coiling-pin. Fig. 7 shows the form of the barb as applied to the strand-wires. Fig. 8 is a view taken at right angles to the axis of the spindle, showing the relation of the barbed wire to the pin and the shearing-knife. Fig. 9 is a plan view of a modified form of the machine in which the spindle is driven by an interrupted or mutilated gear instead of a rack, as in the former views, and showing also a different means for actuating the cut-off or knife. Fig. 10 is a partial longitudinal sectional elevation of the machine shown in Fig. 9.

Many of the parts of this machine are old and of well-known construction, and no particular description need be given thereof.

The machine as a whole may be mounted upon a frame or stand 11 and the operative parts driven through the power-shaft 12, from which the power is transmitted through the bevel-gears 13 14 to shaft 15 and thence through the sprocket-chain 16 to shaft 17. Shaft 17, through the bevel-gears 18 19, drives a short shaft 20, parallel to the power-shaft 12, and shaft 20, through the pinion 21 and gear 22 and pinion 23 and large gear 24, drives the feed-wheels 25 26, which feed in the strand-wires 27 28. These wires are conducted forwardly through suitable guides, the wire 27 passing through the hollow axis of the spindle 29. Said spindle 29 has both a rotary and a sliding movement within a bearing 30, and it is driven through the instrumentality of a sleeve 31, with which it has a slot-and-key connection, the slots being marked 32 and the keys 33. The sleeve 31 has a bearing in the standard 34 and carries a gear 35, driven by a pinion 36, mounted loosely on the shaft 37, which latter has a bearing in the standard 34 and also in a standard 38 and has secured thereon the gear



39 and a clutch member 40. The clutch member 40 has a spring locking-pin or clutch-dog 41 and normally contacts the face of the gear 36. The latter has a cam-lug 42 thereon, with a square shoulder or face and a sloping side, so that in one direction it will engage with the clutch-pin 41 and lock the clutch 40 and the gear 36 together, while permitting the independent movement of the clutch in one direction of rotation. The gear 36 is locked against retrograde movement by means of a spring-actuated locking-pin 43, mounted in a standard 34, which is adapted to engage an aperture 44 in the side of the gear 36, the web of the gear being cut away or beveled, as shown at 45, to enable the pin to slide out of locking engagement with the gear during its movement in one direction.

A rack 46 is enmeshed with the gear 39 and has a vertical reciprocating motion imparted to it through the pitman 47, driven from a wrist-pin 48 on the crank-wheel 49, which is mounted on a short shaft 50 in the hanger 51, and said shaft carries on its opposite end a gear 52, driven by the gear 53 on the shaft 17.

The bearing 30 is mounted upon a sliding table 54, which slides in ways on a frame 11 and carries thereon the feed mechanism for the barbed-wire stock and also the knife for shearing the barb from the barb-wire stock, which reciprocating movement is imparted to said table through the eccentric 55 on shaft 20 and pitman 56, the forward end of the pitman being pivotally connected to a lug 57 on table 54. The parts are so proportioned and timed that the table performs its forward traverse during two revolutions of the spindle. The barbs are formed from a wire 58, which is fed forward by a pair of feed-wheels 59 60; but as the means for driving this feed mechanism are old no particular description thereof is necessary. The wire 58 is fed beneath the strand-wire 57 in front of the nose of the spindle, and the latter has a pin 61, which engages beneath the end of the barb-wire and coils it about the strand-wire 27 in an obvious manner. The coils of the barb are formed while the bed is being moved forward, and the travel of the bed is proportioned, of course, to the speed of the spindle and the movement of the strand-wires forward.

A spring 62 is coiled around the spindle and has a bearing upon a collar 63 thereon and also upon a bearing 30. This permits the spindle to yield longitudinally while holding it in proper relation to the forming-barb.

Describing the operations of the parts thus far enumerated, the rack 46 is given a regular reciprocating motion. On its upstroke it turns the gear 39, but does not move the gear 36, the latter being held during the upstroke of the rack by the pin 43. On the downward stroke of the rack the clutch members 41 and 42 are in driving engagement and rotate the gear 36, the pin 43 sliding out of locking engagement therewith. During the downward movement of the rack one complete revolu-

tion of the gear 36 occurs, and this effects two revolutions of the gear 35, connected with the arbor or sleeve member 31 of a spindle 29. The pin on the spindle gives the double coil to the barb, and the spindle itself slides forward with the table as the coiling of the barb progresses. At the completion of the forward stroke a knife 64, carried by knife-block 65, is actuated to sever the barb from the wire 58. The knife-block has an arm 66, which contacts with a fixed lug 67 on the frame at the end of the forward movement of the table, and thus rocking movement is imparted to the block for actuating the knife.

From the foregoing description it will be observed that the rack which drives the spindle is always in engagement with the gear and that the clutch mechanism is a simple automatic mechanism. The operation of these parts is smooth, without jar or shock, and entails but little wear, and the machine performs its work with such certainty that it rarely misses a barb, while its capacity is great.

I have not described the spooling mechanism, although its position is indicated and parts of it are shown in Fig. 1 of the drawings.

In Figs. 9 and 10 I have shown a slight modification of the means for driving the spindle, the operation of this modified apparatus being substantially the same. Instead of the rack I have shown a mutilated gear 68, which engages a bevel-gear 69 on the sleeve 31, and the gear, although slightly different, is essentially the same. The knife-block in this construction has an elongated body portion 70, which catches over a latch 71, pivoted on the frame, so as to rock the knife-block at the end of the forward movement of the table.

I claim—

1. In a barbed-wire machine the combination with a stationary frame, a table mounted to slide upon said frame, bearings on the frame and the table respectively, and a two-part spindle, one part of which is mounted in the bearing on the frame and the other in the bearing on the table, a driving-gear fixed on the non-sliding member of the spindle, means for sliding the table and gearing for imparting an intermittent rotary motion to the two-part spindle, substantially as described.

2. In a barbed-wire machine the combination with a two-part spindle the parts of which are connected for rotary movement but adapted to telescope or slide with reference to each other, a gear fixed upon one member of the spindle, a loose gear engaged therewith, a clutch for holding said loose gear against movement in one direction, and a rack and pinion whereby operative rotary movement is imparted to the spindle through the clutch in one direction of movement of the rack, and the loose gear is held against retrograde movement during the opposite movement of the rack.

3. In a barbed-wire machine the combina-



tion with an intermittently-rotating spindle,  
of a clutch-gear for driving said spindle, com-  
prising a constantly-rotating clutch member  
having a spring-pin, and a cam on the loose  
5 gear, and adapted for automatic engagement  
and release, substantially as described.

4. In a barbed-wire machine the combina-  
tion with an intermittently-driven spindle, of  
a loose driving-gear carrying a clutch mem-

ber, a second clutch member constantly re-  
driven, and a spring-actuated locking-pin for  
holding the loose gear against retrograde  
movement, substantially as described.

EDWARD F. SHELLABERGER.

Witnesses:

C. C. LINTHICUM,

Z. T. MANN.