

J. RABER.
 LINE SPACING MECHANISM.
 APPLICATION FILED FEB. 1, 1909

958,173.

Patented May 17, 1910.
 2 SHEETS—SHEET 1.

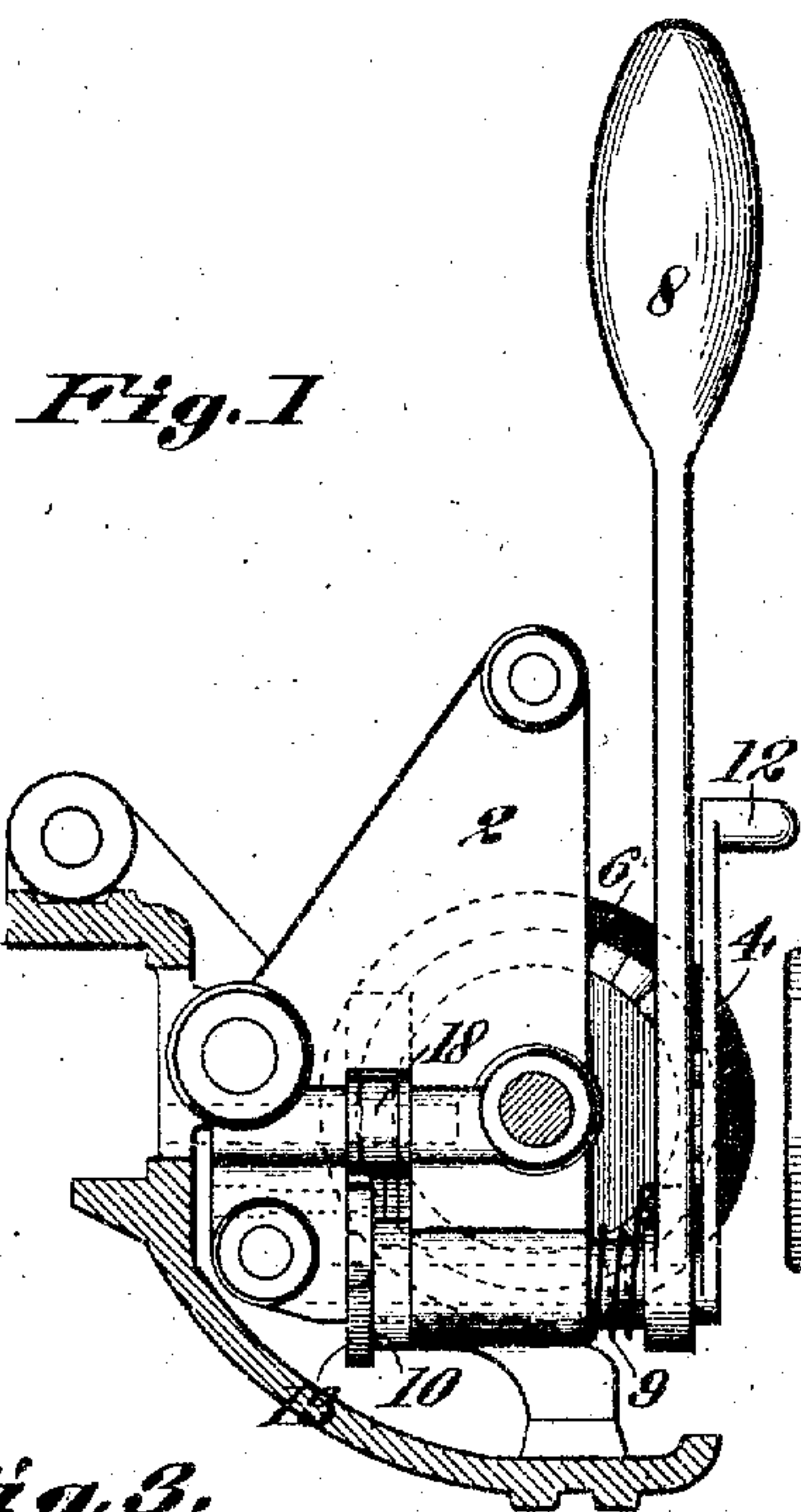


Fig. 1

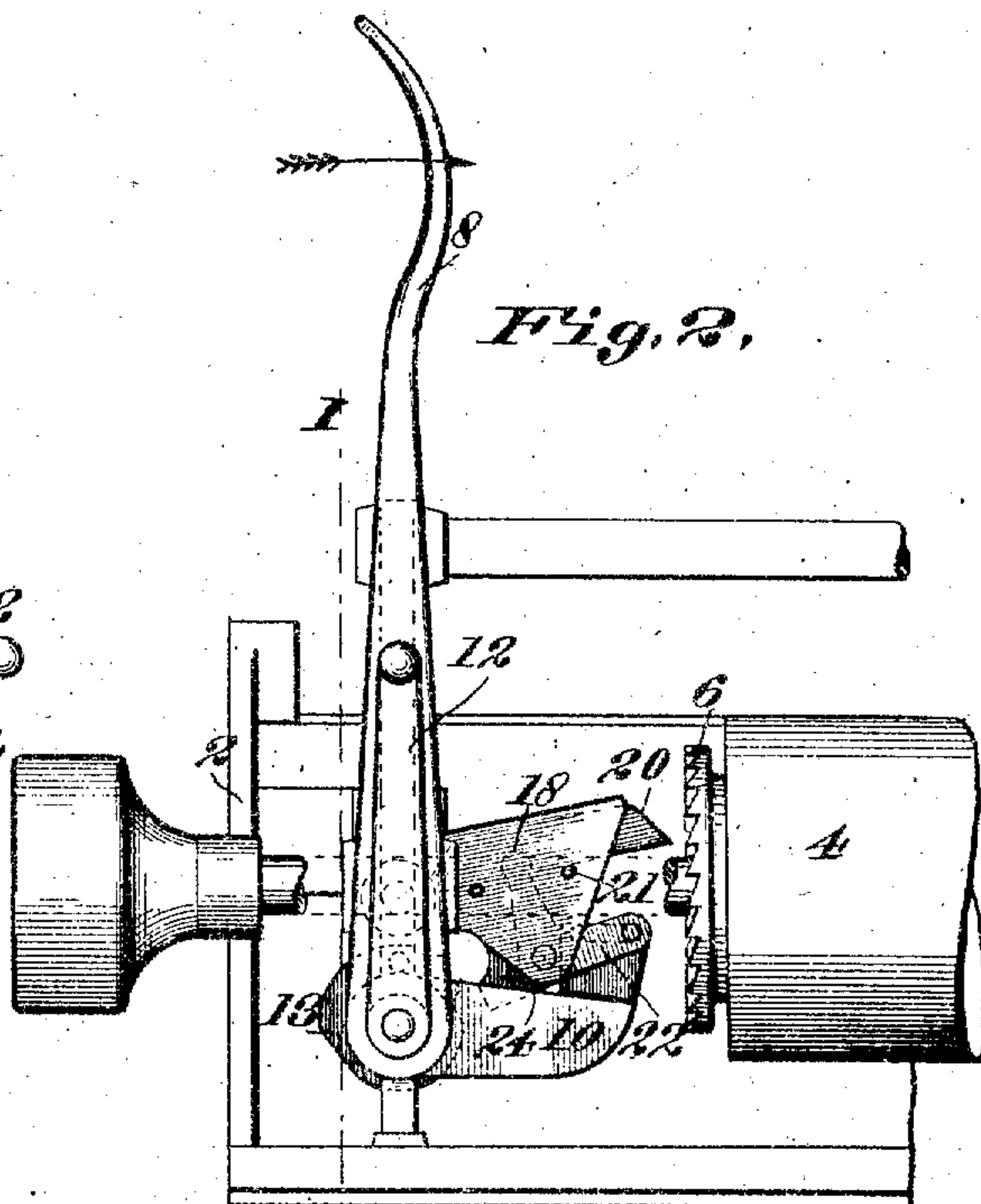


Fig. 2,

Fig. 3,

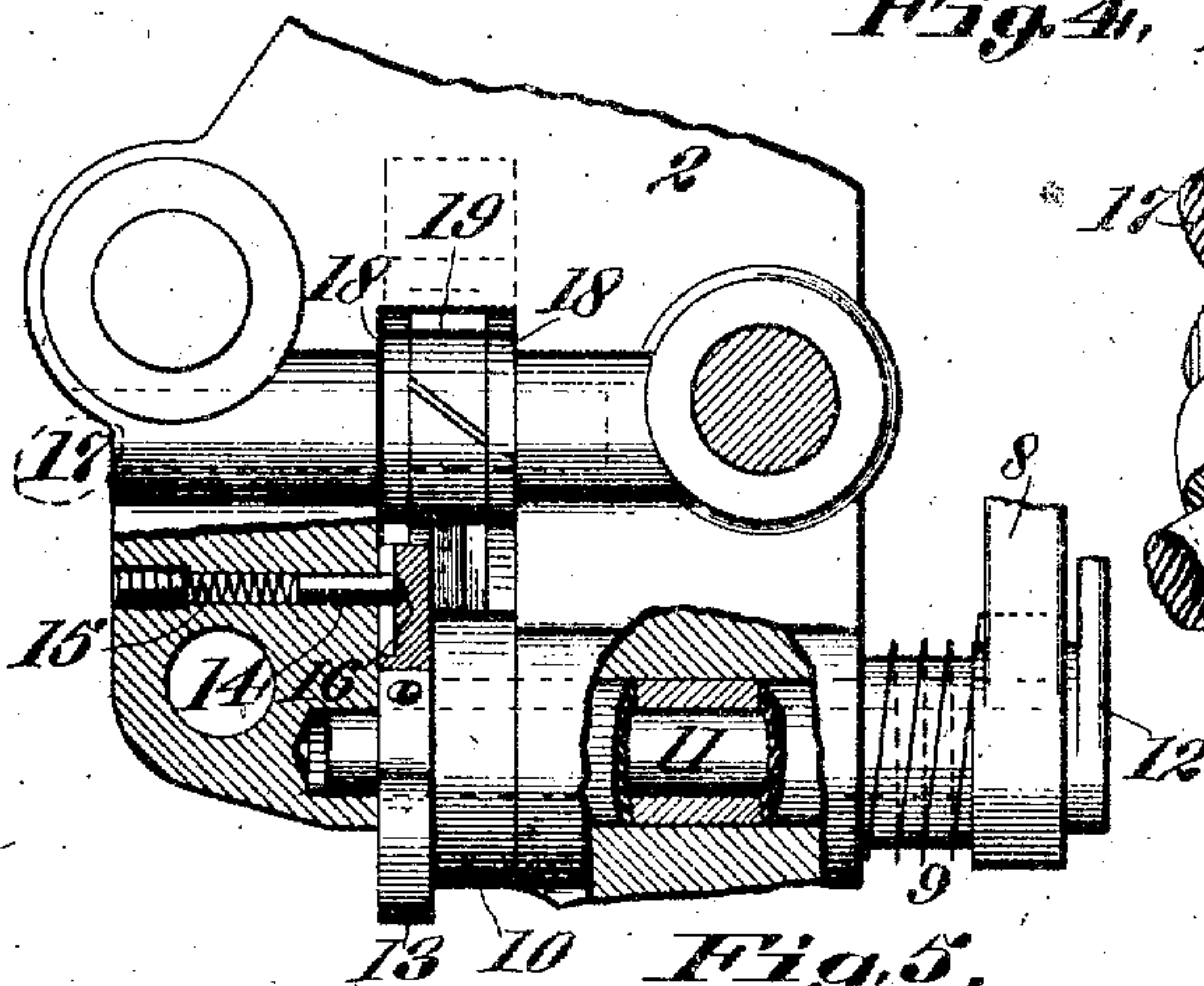


Fig. 4,

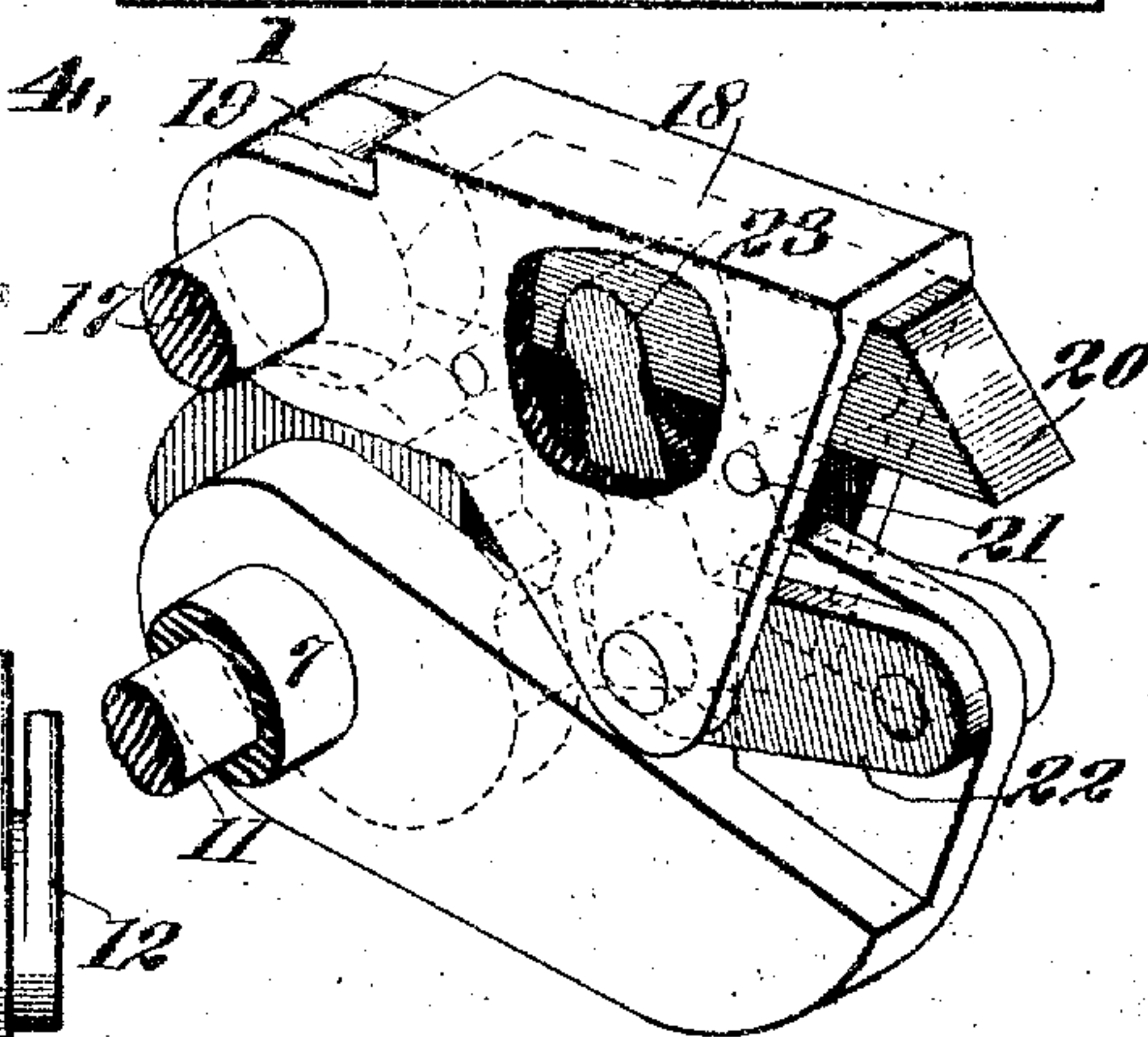
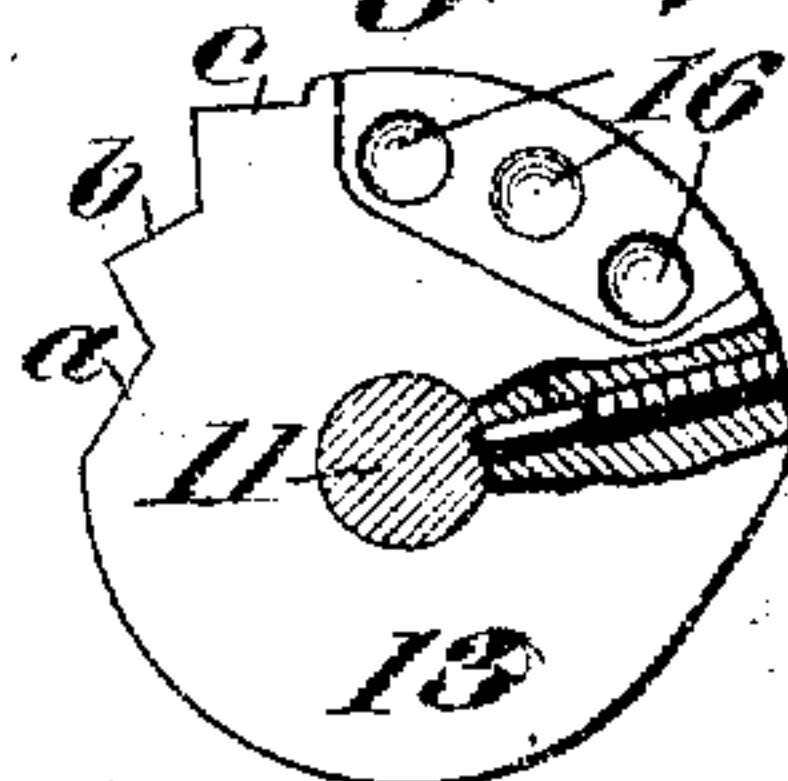


Fig. 5,



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 Charles Pickles,
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 Joseph Raber,
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958,173.

2 SHEETS—SHEET 2.

A perspective view of the machine. It shows a horizontal frame with two rollers. A material, possibly a strip of metal or paper, is being fed into the machine from the left, passing between the rollers. The material has a series of vertical lines or grooves on its surface. The machine is supported by a base. Various parts are labeled with numbers: 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

Inventor,
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UNITED STATES PATENT OFFICE.

JOSEPH RABER, OF POPLAR BLUFF, MISSOURI, ASSIGNOR TO ADDING TYPEWRITER COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

LINE-SPACING MECHANISM.

958,173.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed February 1, 1909. Serial No. 475,408.

To all whom it may concern:

Be it known that I, JOSEPH RABER, a citizen of the United States, residing at Poplar Bluff, Missouri, have invented a new and useful Line-Spacing Mechanism, of which the following is a specification.

This invention relates to line spacing mechanism for typewriting and other recording machines, and has for its object to provide an efficient mechanism operable to rotate the platen to feed the paper in its line spacing movements, and arranged to prevent excess movement of the platen in line spacing, said mechanism being adjustable so that the platen will be operated to move the paper one or more line spaces at each operation, as desired.

In the accompanying drawings, in which is shown one embodiment of my invention, Figure 1 is an end view of a platen carriage having the line spacing mechanism mounted therein. Fig. 2 is a front view of the portion of the platen carriage in which the line spacing devices are mounted. Fig. 3 is an enlarged sectional view illustrating the arrangement of the line spacing operating device. Fig. 4 is a perspective view of the feed pawl and its operating mechanism. Fig. 5 is a detailed view whereby the movement of the feed pawl is regulated as required to determine the distance to which the paper will be fed at each operation. Figs. 6 and 7 are views showing a modification of the invention.

1 indicates a platen carriage of the usual laterally movable type to which are pivoted the platen supporting plates 2. The platen shaft 3 is journaled in bearings in the plates 2 and has a platen 4 attached thereon and is provided on its ends with knobs 5 for well understood purposes. A feed ratchet wheel 6 is attached to the shaft 3, preferably at or near the end of the platen 4 thereon.

A sleeve or tubular shaft 7 is journaled in bearings in one of the plates 2 and has a lever 8 attached to the front end thereof for manual operation. A spring 9 encircles the sleeve or shaft 7, having one end attached thereto and the opposite end in connection with the plate 2 effectively to hold the lever 8 and the operative parts in their idle position, substantially as shown in Fig. 2.

An arm or lever 10 is attached to the rear end of the shaft 7 and is supported in a substantially horizontal position extending

toward the end of the platen 4. A shaft 11 has bearing within the shaft 7 and is free to rotate therein. On the front end of the shaft 11 is an operating crank or lever 12, and a plate 13 is secured to the rear end of said shaft. A ratchet pin 14 is mounted in a recess in the plate 2 and is actuated against the plate 13 by a spring 15, engaging in holes 16 in the side of said plate to hold the same in its various adjustments. The end of the pin 14 is pointed so that the shaft 11 may be rotated by operation of the crank or lever 12 and moved to its various positions.

Upon the periphery or edge of the plate 13 is formed a series of offsets,—three in the present instance, designated as A, B, and C, respectively. These offsets are at different distances from the axis of the plate, the one marked A being nearest; the one B, being next, and the one C being farthest. These offsets and the holes 16 are arranged in corresponding series so that when the pin 14 is engaged in one of said holes the corresponding offset will be presented at the proper position for use.

A shaft 17 is supported by the plate 2 above the shaft 7, and carries a pivoted pawl support 18 that is held against operation by gravity when the arm 10 is lowered by a spring collar 19 mounted between the two arms thereof, and being effective to resist movement of said support as is well understood.

A feed pawl 20 is mounted within the pawl support 18, being supported therein by pins 21. A bell crank lever 22 is pivoted at its angle to the pawl support 18 and has one arm extending toward the end of the platen and pivoted near its end to the arm 10. The other arm of said lever extends into the pawl support 18 and into a recess 23 formed in the pawl 20. A projection 24 on the pawl support 18 is arranged to engage against the offsets A, B, and C on the stop plate 13 and thereby stop movement of the feed pawl when the latter is operated to rotate the platen in line spacing.

When the lever 8 is operated in the direction indicated by the arrow in Fig. 2, the arm 10 oscillates the lever 22 sliding the pawl 20 into locked engagement with the ratchet wheel 6, and continued movement of the lever toward the pawl 20 rotates the platen until the projection 24 comes into contact with that one of the offsets A, B, C,

which is in operative position. The offset A being nearest to the axis of its support, permits greater movement of the pawl 20 and therefore farther rotation of the platen than do the offsets B and C. The spring collar 19 prevents downward movement of the support 18 until the feed pawl 26 engages with the ratchet wheel 6, and insures locked engagement of the pawl and ratchet wheel prior to the downward movement of the pawl. The pawl being held in positive locked engagement with the ratchet wheel prevents excess movement of the platen when violently or forcibly operated which often occurs, such excess movement carrying the paper beyond its proper position.

In the modification illustrated in Figs. 6 and 7, there is a pawl support 25 corresponding in function to the pawl support 18 and which is supported on the shaft 26 and prevented from actuation by gravity by a spring friction device 27. A pawl 28 is pivoted to the inner side of the pawl support 25, its movement being restricted by projections 28 impressing a pin 29 on the pawl support. A pin 30 extends through an oblique slot 31 in the arm 32 attached to the sleeve or shaft 7, and performing the same functions as the arm 10 above referred to. An extension 33 on the pawl support 25 is supported to engage against the offsets A, B, and C on the plate 13 in the same manner and for the same purpose as previously described. The operation of this device is the same as previously described.

I am aware that there may be modifications and alterations in the construction and arrangement of the parts embodying this invention without departure from the spirit and scope of the invention, and I do not restrict myself to identical features of construction or arrangement, but

What I claim and desire to secure by Letters Patent is:

1. The combination with a platen, and a ratchet wheel, of a shaft, means for oscillating said shaft, an arm connected to said shaft, a pawl support, a pawl mounted to slide in said support, a lever connecting said arm and said pawl whereby said pawl will be moved relative to said support and engaged with the ratchet wheel when said oscillating means is operated, and an adjustable stop in position to be engaged by said pawl support whereby the movement of the pawl may be regulated as desired, substantially as specified.

2. The combination of a platen, and a ratchet wheel, of a shaft, operating means connected to said shaft, an arm attached to said shaft, a pawl support separate from said shaft, a pawl slidably carried by said support, a lever pivotally connecting said pawl and said arm whereby said pawl will

be moved into engagement with said ratchet wheel when said arm is operated, a stop device to limit movement of said pawl support, and means for adjusting said stop device to change the scope of movement of said pawl, substantially as specified.

3. Line spacing mechanism comprising, in combination with a platen, and a ratchet wheel attached thereto, a pawl support, a pawl mounted to slide in said support and held out of engagement with the ratchet wheel, an arm, a lever pivoted to said pawl support and to said arm and connected with said pawl, and means for operating said arm and lever effectively to move said pawl into engagement with the ratchet wheel and then moving the pawl and support together effectively to rotate said platen for line spacing, substantially as specified.

4. Line spacing mechanism comprising, in combination with a platen, and a ratchet wheel attached thereto, a pawl support, a pawl carried by said support and held in idle position out of engagement with the ratchet wheel, an arm separate from said support, a lever pivoted to said arm and said support and connected with said pawl, means for moving said arm and lever effectively to move said pawl into engagement with said ratchet wheel and then moving the pawl support and pawl together effectively to rotate the platen, and an adjustable stop for limiting movement of said parts, substantially as specified.

5. Line spacing mechanism comprising, in combination with a platen, and a ratchet wheel attached thereto a pivoted support, a pawl mounted to slide in said support, an operating lever, lever connections between said operating lever and said pawl whereby said pawl will be caused to slide into engagement with the ratchet wheel effectively to rotate the platen when said operating lever is operated, and means for first disengaging the pawl from the ratchet wheel and then moving said pawl to its idle position.

6. The combination with a platen, and a ratchet wheel attached thereto, of a pivoted pawl support, a pawl mounted in said support, an arm, a lever connected to said pawl and pivoted to said pawl support and to said arm, a spring holding said parts in idle position, and a lever operable to cause said pawl to be engaged with said ratchet wheel, substantially as described.

7. The combination with a platen, and a ratchet wheel attached thereto, of a pawl support, a pawl mounted in said support, a lever pivoted to said support and engaging with said pawl, a shaft, an arm of said shaft pivoted to said lever, and an operating lever attached to said shaft whereby said pawl may be caused to engage with said ratchet wheel, substantially as described.

8. The combination with a platen, and a

5 ratchet wheel attached thereto, of a pivoted
pawl support, a pawl mounted in said sup-
port, an arm, a lever connected to said pawl
and pivoted to said arm and to said pawl
support, a lever operable to cause said pawl
to be engaged with said ratchet wheel, an
adjustable stop limiting movement of said
pawl support and pawl, and a lever operable
to adjust said stop in different adjustments,
10 substantially as specified.

15 9. The combination with a platen, and a
ratchet wheel attached thereto, of a pivoted
pawl support, pawl mounted in said sup-
port, an arm, a lever connected to said pawl
and pivoted to said arm and to said pawl
support, a lever operable to cause said pawl
to be engaged with said ratchet wheel, an
adjustable stop limiting movement of said
pawl support and pawl, a latch device act-
20 ing to hold said stop in different adjust-
ments, and a lever operable to adjust said

stop in different adjustments, substantially
as specified.

10. The combination with a platen, a
tubular shaft, and devices operated by said 25
shaft effectively to rotate said platen, of
a shaft mounted in said tubular shaft, a
stop in said second-named shaft arranged
to limit movement of said tubular shaft and
said devices operated thereby, a lever oper- 30
able to adjust said stop in different posi-
tions, and a spring-actuated latch effective
to hold said stop in its different positions,
substantially as specified.

In testimony whereof, I hereunto affix my 35
signature to this specification this 13th day
of January, 1909, in the presence of two
witnesses.

JOSEPH RABER. [L. S.]

Witnesses:

CHARLES PICKLES,
JOHN E. GREVE.