G. S. CONGER & C. PEARCE.

PAPER FEED MECHANISM.

APPLICATION FILED DEC. 27, 1906.

918,013.

Patented Apr. 13, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

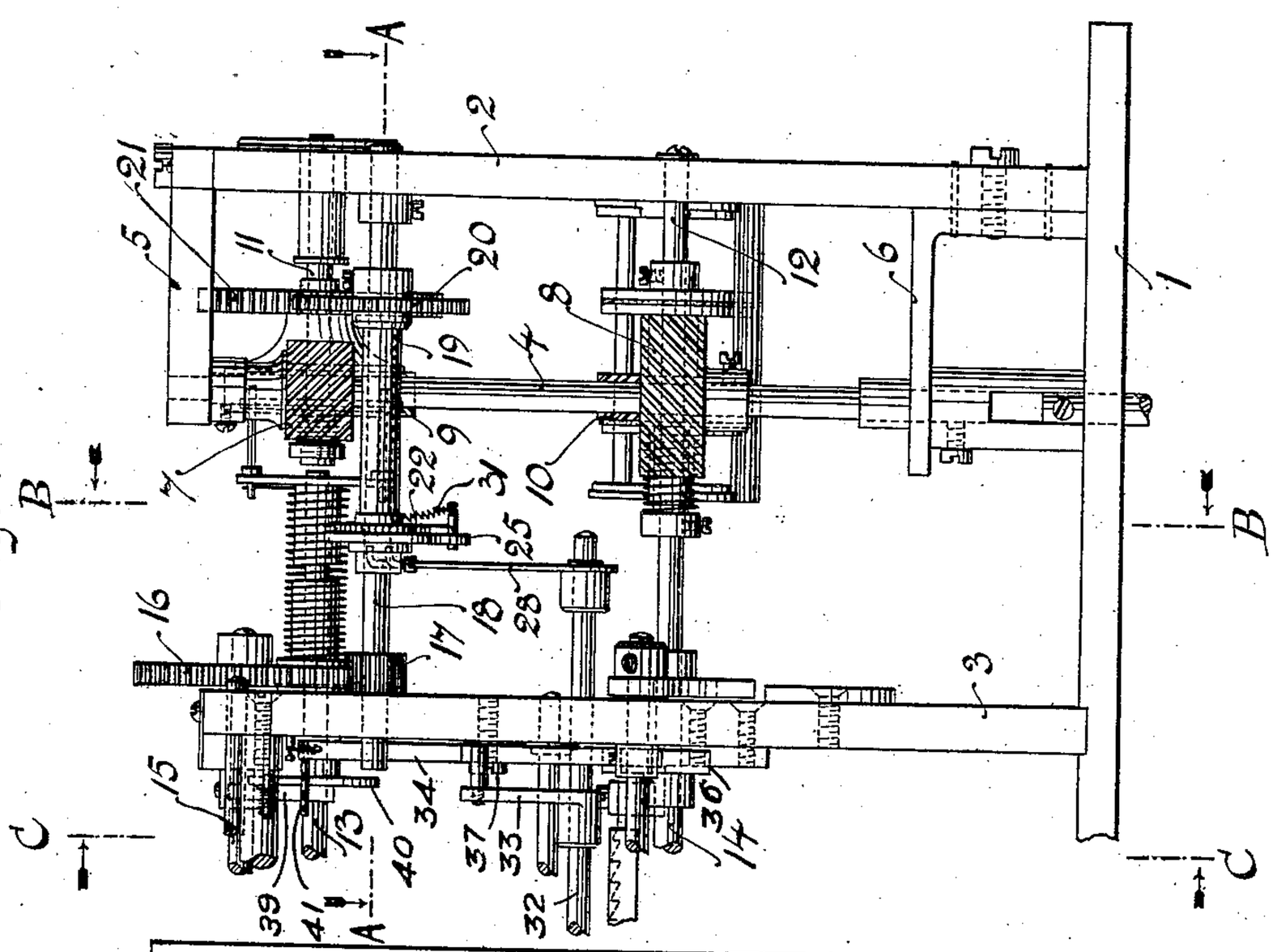

Fig. 2.

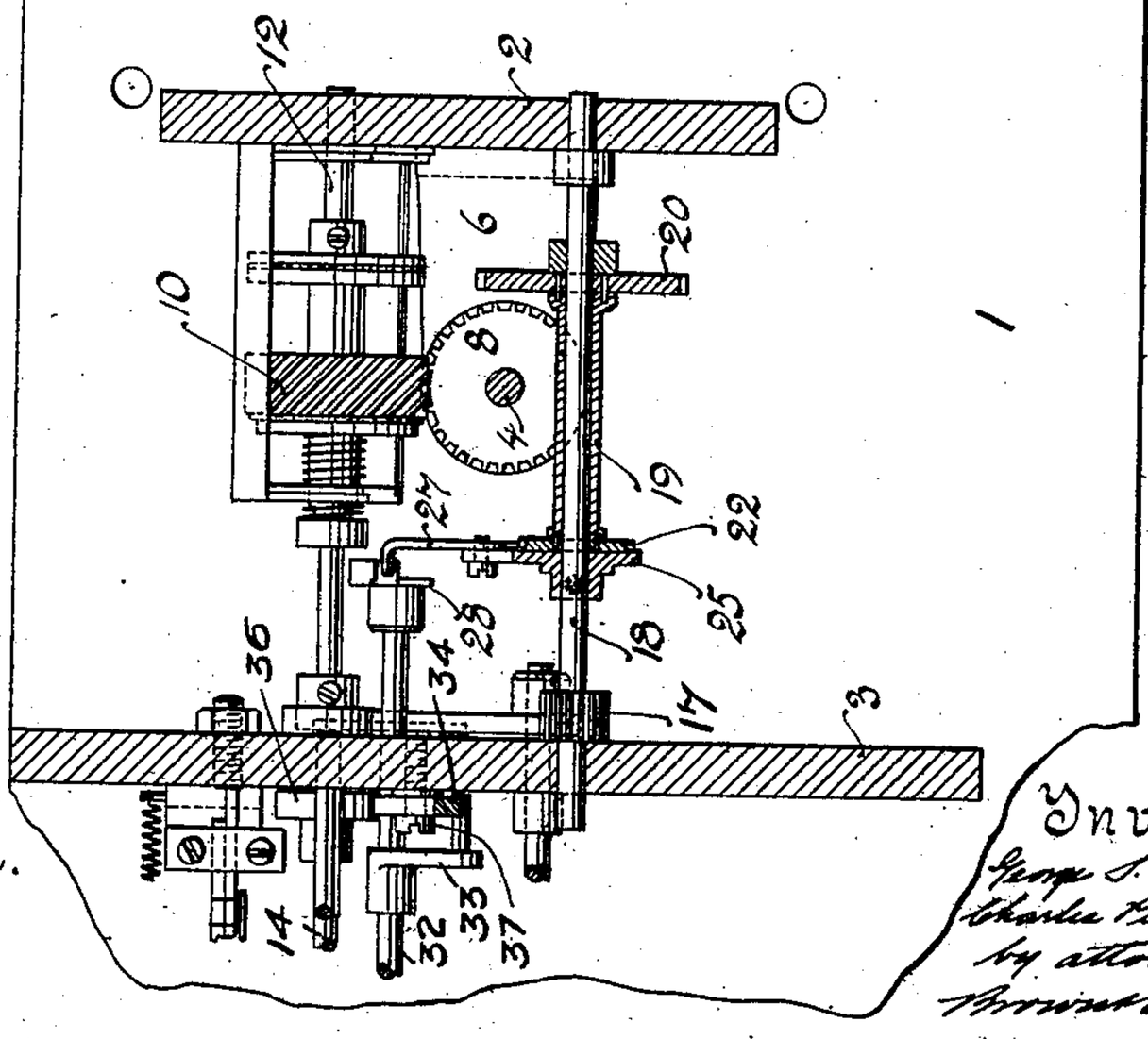

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Fig. 3.

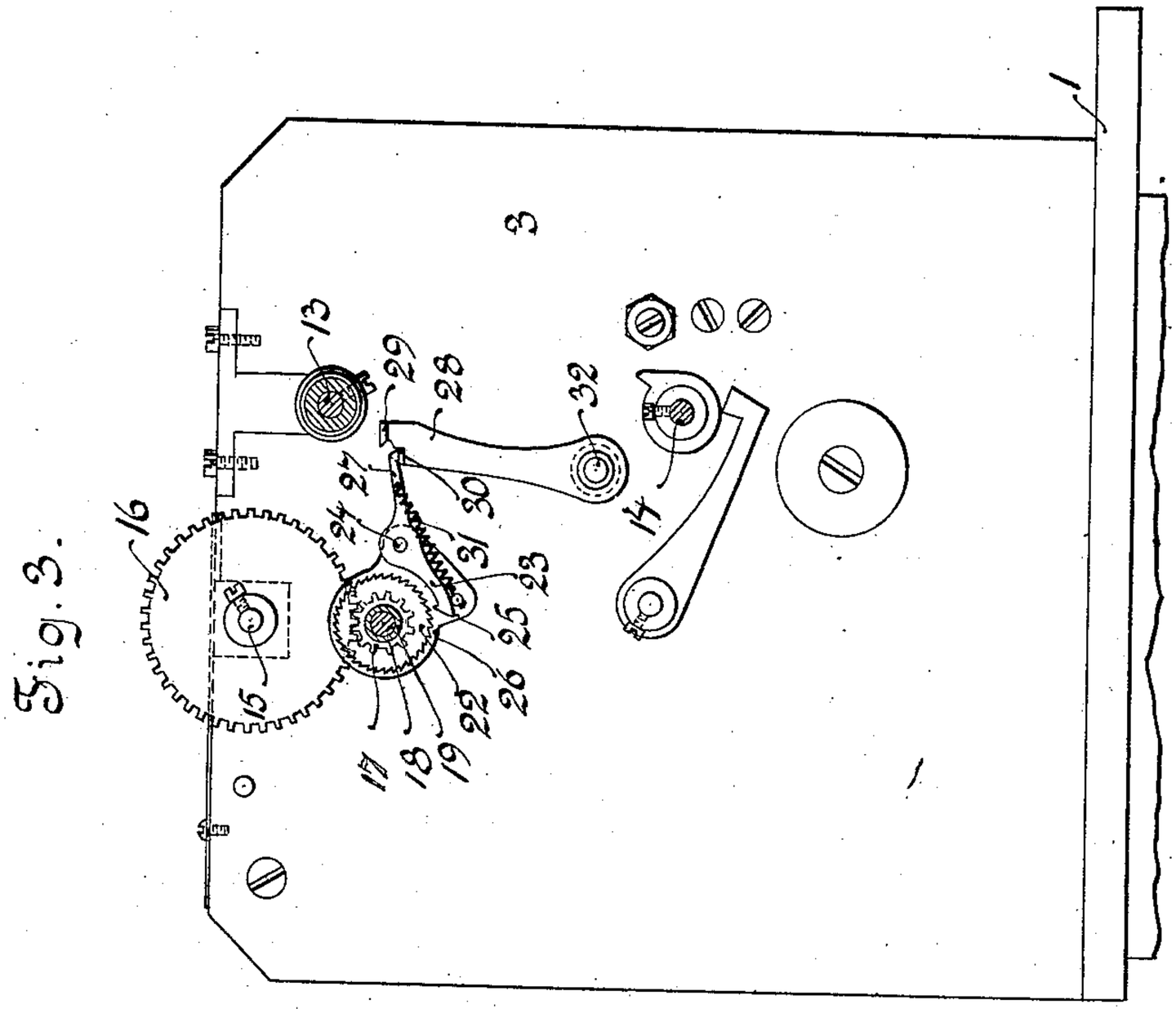
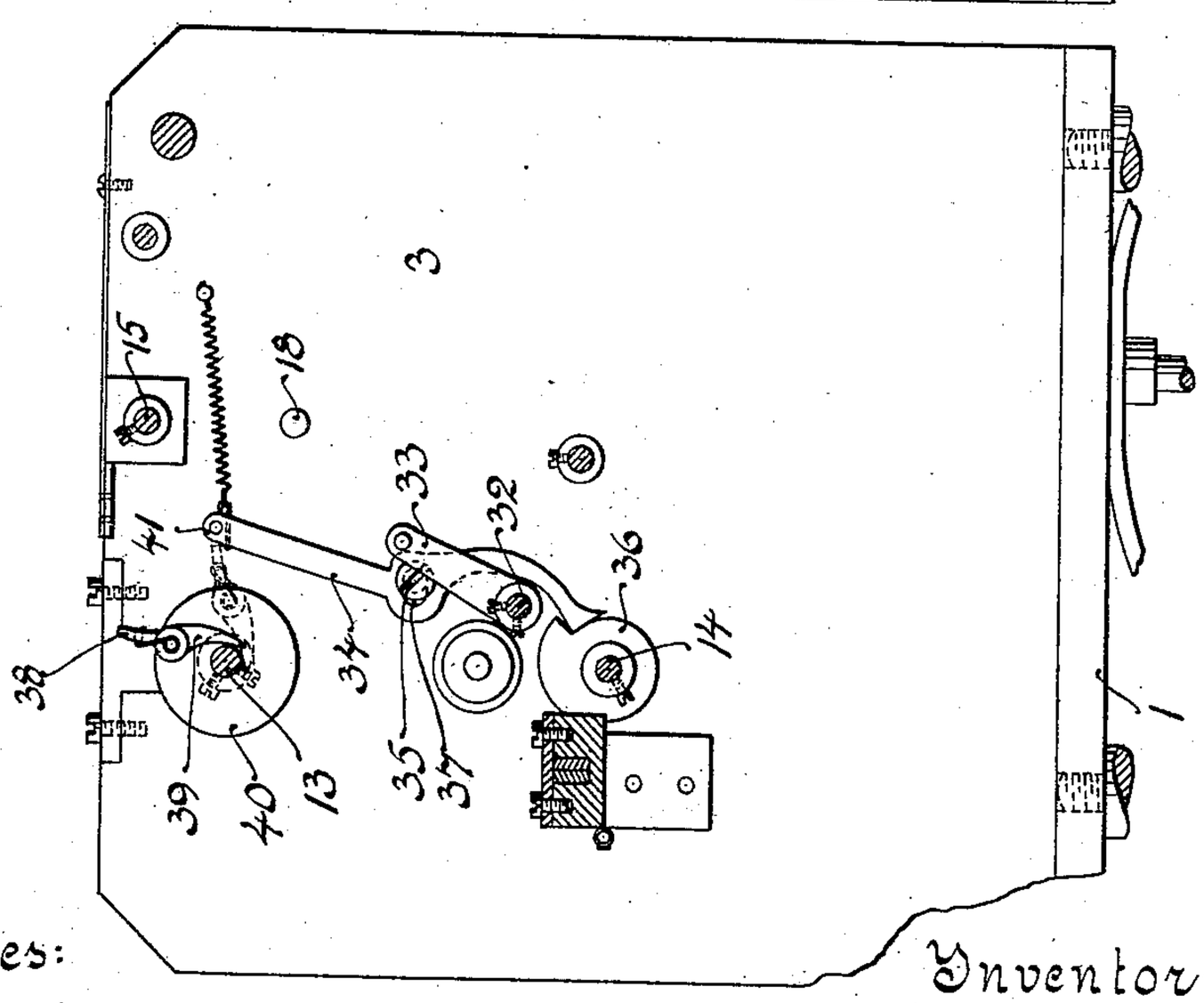


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE S. CONGER AND CHARLES PEARCE, OF NEW YORK, N. Y., ASSIGNORS TO ELTYPIC MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA.

PAPER-FEED MECHANISM.

No. 918,013. Specification of Letters Patent. Patented April 13, 1909.

Application filed December 27, 1906. Serial No 349,629.

To all whom it may concern:

Be it known that we, GEORGE S. CONGER and CHARLES PEARCE, citizens of the United States, and residents, respectively, of the borough of Brooklyn, in the city and State of New York, and of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Paper-Feed Mechanism, of which the following is a specification.

Our invention relates to paper feed mechanism and more particularly to paper feed mechanism for a printing telegraph instrument, the object being to make the feed positive and, at the same time, prompt, reliable and durable without unduly complicating the mechanism.

A practical embodiment of our invention is represented in the accompanying drawings, in which—

Figure 1 is a view in side elevation of so much of a printing telegraph machine as will suffice to illustrate the present invention, Fig. 2 is a horizontal section of the same in the plane of the line A—A of Fig. 1, Fig. 3 is a vertical transverse section in the plane of the line B—B of Fig. 1, and Fig. 4 is a vertical transverse section in the plane of the line C—C of Fig. 1.

The frame of the machine, as illustrated, consists of a base 1 from which rise plates 2 and 3 for supporting the operating parts. A continuously rotating upright shaft 4 driven from a suitable source of power, not shown, is supported in brackets 5 and 6 extending laterally from the plates 2 and carries thereon worm wheels 7 and 8 which gear with worms 9 and 10 on shafts 11 and 12 for imparting motion to the type wheel shaft 13 and the cam shaft 14, respectively.

The type wheel and the mechanism which immediately coacts therewith to permit it to rotate and to shift the type wheel back and forth along the shaft 13 as well as the cams on the cam shaft other than the cam which serves to throw the clutch into action for operating the paper feed mechanism are omitted from the present drawings as they form no part of the present invention, the present invention being directed solely to the mechanism for positively operating the paper feed shaft through connections with the continuously driven shaft 4.

The paper feed shaft is denoted by 15 and is mounted at one end in suitable bearings in the plate 3 and carries on its end in proximity to the plate 3 a spur wheel 16. The spur wheel 16 intermeshes with a pinion 17 on a shaft 18 mounted in the plates 2 and 3 and carrying thereon a sleeve 19. This sleeve 19 carries a spur wheel 20 which intermeshes with a spur wheel 21 on the shaft 11 driven by the continuously rotating shaft 4. The sleeve 19 also carries at or near its opposite end a ratchet toothed disk 22.

The sleeve 19 with its spur wheel 20 and its ratchet toothed wheel 22 is free to revolve under the influence of the driving wheel 21 on the shaft 11 without rotating the shaft 18 and hence without rotating the pinion 17 and its intermeshing wheel 16 on the paper feed shaft.

When it is desired to feed the paper forward, the sleeve 19 becomes locked to the shaft 18 for a time sufficient to feed the paper the desired distance forward, usually the space between two consecutive lines, and this sleeve 19 actuated by the shaft 4 through the intermeshing gear is locked to and released from the shaft 18 by means of a pawl, as follows:—A pawl 23 is pivoted at 24 to the extension 25 of a collar 26 locked to the shaft 18 in position to have its hooked end rock into and out of engagement with the ratchet teeth on the wheel 22. The pawl 23 has a tail piece 27 in position to engage a trip arm 28 provided at its free end with teeth 29 and 30 at different distances from the pivotal point of the arm 28 and a spring 31 attached at one end to the tail piece 27 and at the opposite end to the extension 25 on the collar 26 serves to promptly throw the pawl into engagement with the ratchet wheel 22 whenever the tail piece 27 is released from the tooth 30 on the trip arm 28 and hence to lock the rotating sleeve 19 to the shaft 18 causing the latter to rotate and hence feed the paper forward until the pawl 23 is again thrown out of engagement with the ratchet wheel 22.

When the trip arm 28 is rocked to the right as the drawing is shown in Fig. 3, the spring 31 will throw the pawl into engagement with the ratchet wheel and the pawl together with its support will rotate with the sleeve 19 until the tail piece strikes the tooth 29 or the tooth 30 on the outer end of the trip arm, which engagement will promptly rock

the pawl out of engagement with the ratchet wheel and the feed of the paper will thereupon promptly cease.

The trip arm 28 is mounted on a rock shaft 32 which passes through the plate 3 where it is provided with an arm 33 subject to be rocked by a lever 34 under predetermined conditions as follows:—The lever 34 rocks normally on a pivot 35 by the action of a cam 36 on the cam shaft 14. The slot 37 in the lever 34 through which the pivot 35 passes is elongated so as to permit the said lever to rock on a fulcrum at or near one end when the operative parts are in a given position, as for example, when the tail piece 38 of the rocking dog 39 carried by the disk 40 on the type wheel shaft 13 is in position to interrupt the swinging movement of the end 41 of the lever 34, (see the dotted line position of the tail piece 38 in Fig. 4). When the lever 34 and tail piece 38 are in this position so that the end 41 will engage the tail piece 38, the lever 34 will no longer be free to rock on the pivot 37 but will fulcrum on the tail piece 38 when its opposite end is actuated by the cam 36 and in rocking on the fulcrum 38, its center portion will swing to the right as the drawing, Fig. 4, is held, thereby rocking the arm 33 and hence the shaft 32 in a direction to swing the trip arm 28 out of engagement with the tail piece 27 on the pawl 23.

In practical operation, the disk 40 on the type wheel shaft is under the control of the operator, for instance, the operator at some distant station in a system of printing telegraph, to be thrown into the position to arrest the swinging of the lever 34 at pleasure, *i. e.*, whenever it is desired to form a new line or blank space between two lines, whether successive or not, and when the disk 40 is so thrown it will put the lever 34 in position to rock on this new fulcrum and hence swing the arm 28 in a direction to release the tail piece 27 of the pawl 23 allowing the latter to rock into engagement with the ratchet toothed wheel and so cause the paper to be positively fed forward during a revolution of the paper feed shaft. This may be repeated as often as the operator from the sending station desires and so long as the disk 40 is not rocked in position to form a temporary fulcrum for the lever 34, the paper feed will remain out of action and under no tension whatever tending to operate it, the sleeve 19 during this time working idly on the shaft 18 and the shaft 18 remaining at rest.

What we claim is:—

1. In combination, a continuously driven shaft, a paper feed shaft, a sleeve supporting shaft geared to the paper feed shaft, a sleeve loosely mounted on the sleeve supporting shaft and geared to the continuously driven shaft and means for locking the sleeve to and releasing it from the sleeve supporting shaft, at pleasure.

2. In combination, a continuously driven shaft, a paper feed shaft, a type wheel shaft, a cam shaft provided with a cam, a rocking lever controlled by the cam, means connected with the type wheel shaft for changing the fulcrum of the rocking lever, a rock shaft controlled by the rocking lever, a sleeve shaft geared to the feed shaft, a sleeve geared to the continuously rotating shaft and means under the control of the aforesaid rock shaft for locking the sleeve to and releasing it from the sleeve shaft.

3. In combination, a continuously driven shaft, a feed shaft, a sleeve shaft geared to the feed shaft, a sleeve geared to the continuously driven shaft and provided with a ratchet toothed wheel, a pawl carried by the sleeve shaft, a type wheel shaft and means under the control of the type wheel shaft for throwing the pawl temporarily into engagement with the ratchet toothed wheel.

4. In combination, a continuously driven shaft, a feed shaft, a sleeve shaft geared to the feed shaft, a sleeve geared to the continuously driven shaft, a ratchet toothed wheel carried by the sleeve, a spring actuated pawl carried by the sleeve shaft, a rock shaft, a trip arm carried by the rock shaft for operating the pawl, a type wheel shaft and means under the control of the type wheel shaft for rocking the said rock shaft to throw the pawl into locking engagement with the ratchet toothed wheel.

In testimony, that we claim the foregoing as our invention, we have signed our names in presence of two witnesses, this fourteenth day of December 1906.

GEORGE S. CONGER.
CHARLES PEARCE.

Witnesses:
HENRY THIEME,
FREDK. HAYNES.