

(No Model.)

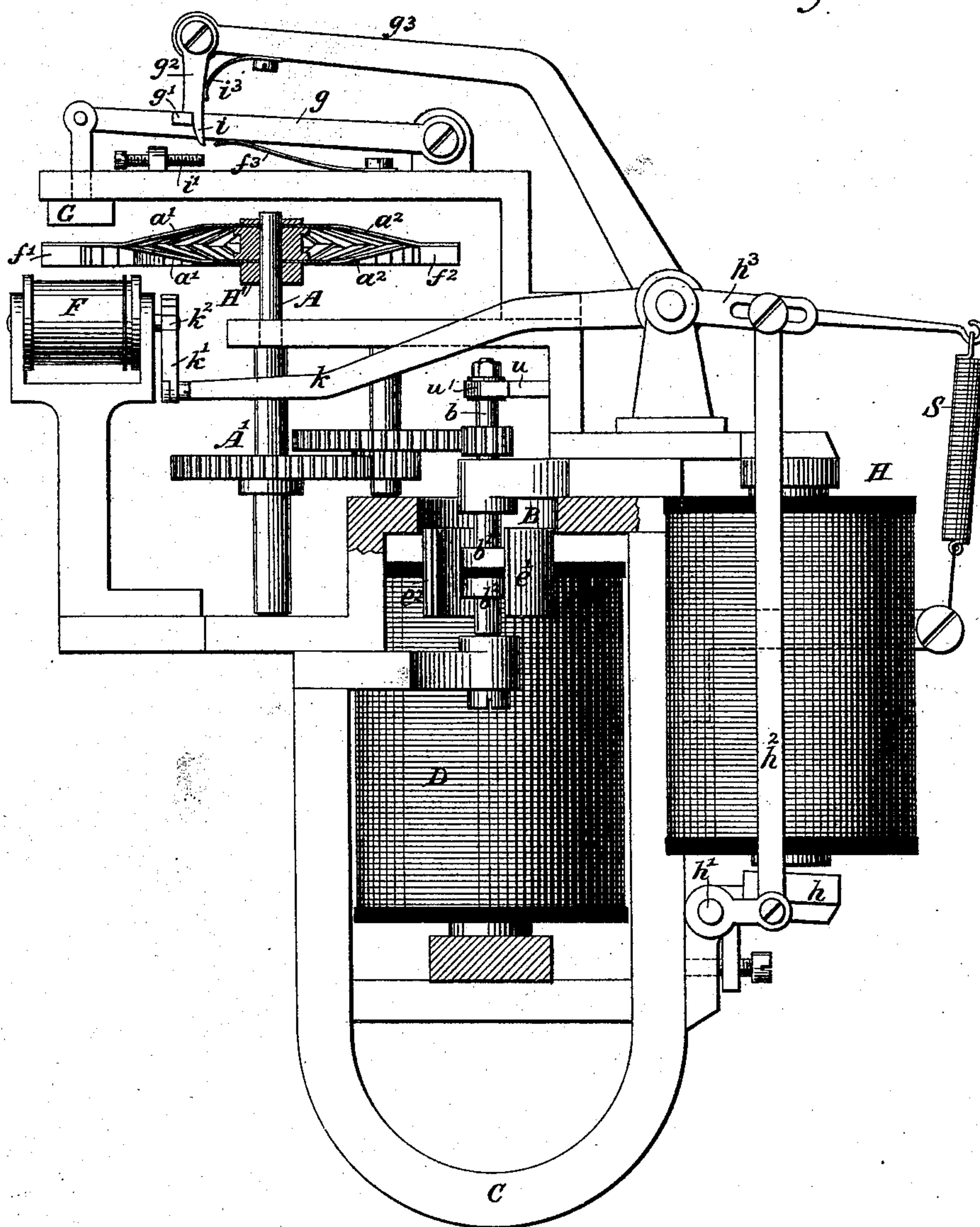
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R. J. SHEEHY.
PRINTING TELEGRAPH.

No. 368,859.

Patented Aug. 23, 1887.

Fig. 1.



Witnesses

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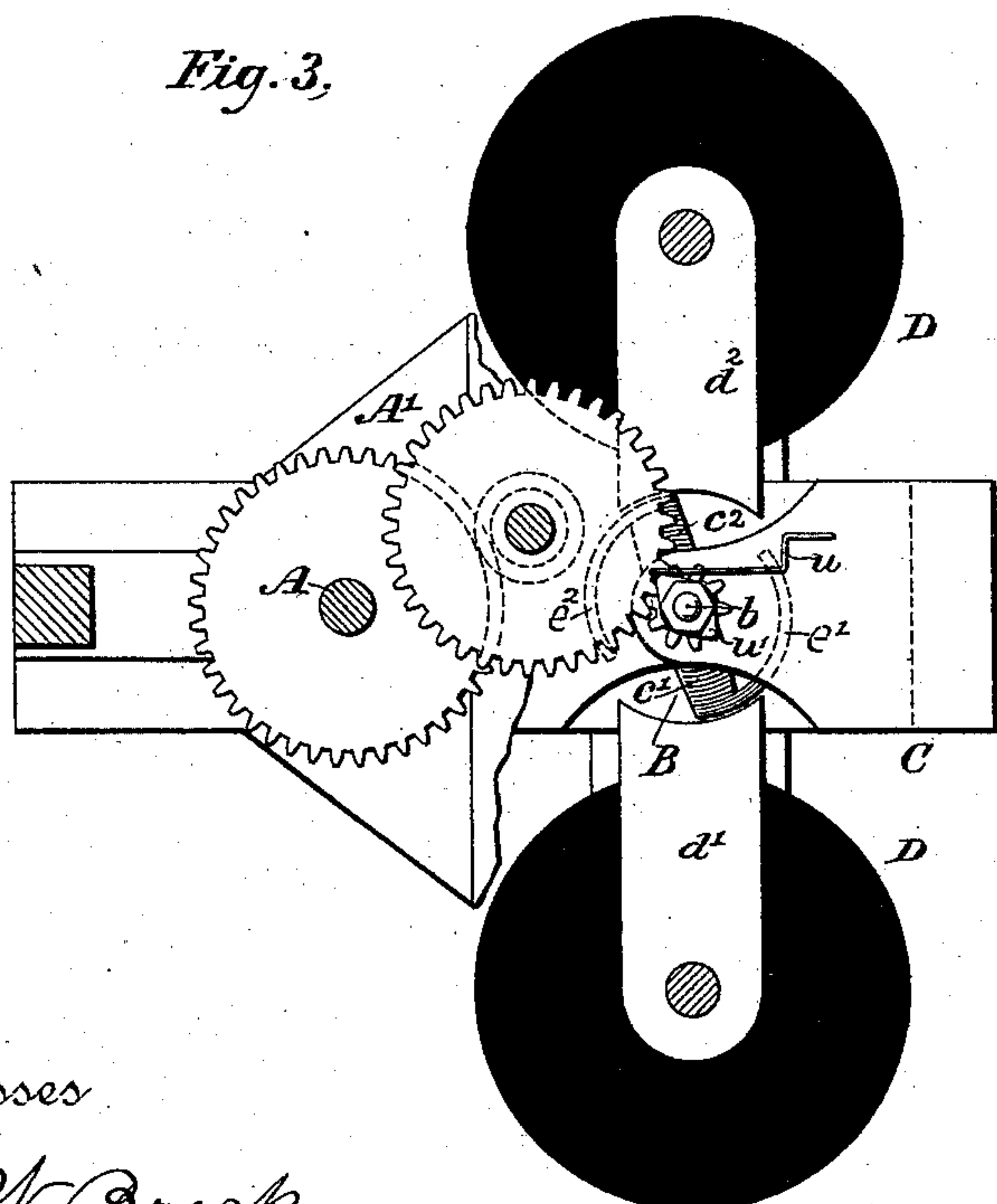
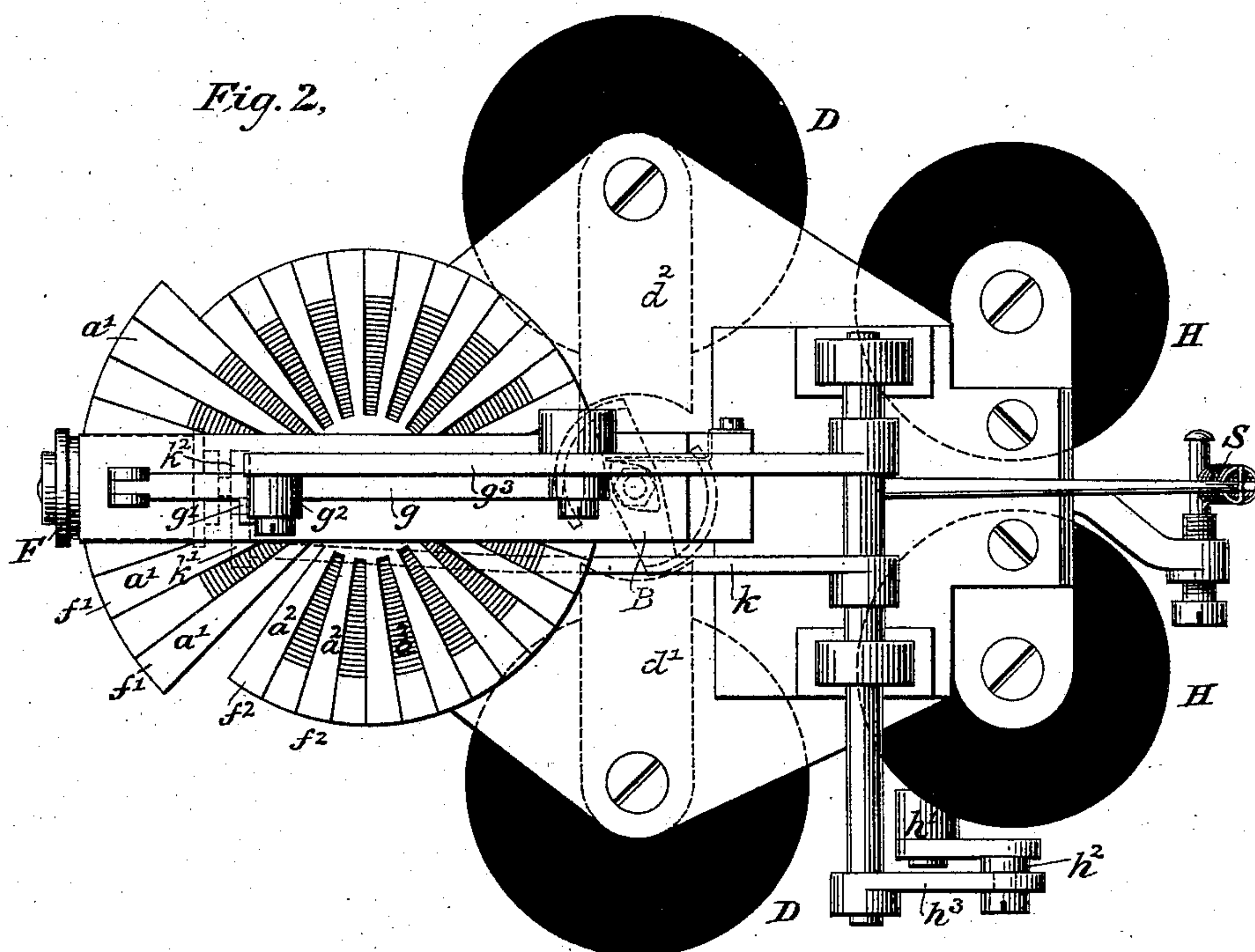
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UNITED STATES PATENT OFFICE.

ROBERT J. SHEEHY, OF NEW YORK, N. Y.

PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 368,859, dated August 23, 1887.

Application filed March 24, 1886. Serial No. 196,342. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. SHEEHY, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Printing-Telegraphs, of which the following is a specification.

My invention relates to the class of apparatus employed for printing messages and dispatches by means of electric currents transmitted from a distant station.

It is usual in printing-telegraph instruments to revolve one or more type-wheels having characters engraved upon their peripheries and to effect impressions therefrom by thrusting the paper against the type-wheels. The present invention, however, relates to the class of instruments in which the individual type are independently movable and may be thrust against the paper.

The object of the invention is to provide a simple form of instrument adapted to print letters in one line and figures in another line, and to arrange the type so that they may be moved out of the plane in which they normally stand to effect the impressions.

The invention consists in constructing the instrument in substantially the following manner: The type are carried upon flexible arms, extending from a suitable revolving shaft and caused to pass in their revolution above a printing-roller. The arms are of different lengths, those carrying figure-type extending a greater or less distance from the shaft than those carrying the letters. The shaft may be arrested in any desired position with the required type above the roller. An impression-hammer is then thrust against the arm carrying the type and an impression is thus made of that particular type upon the paper. The type-wheel shaft is preferably advanced step by step by means of an electric motor of peculiar construction, and the impression-hammer is operated by means of an independent electro-magnet, which is preferably vitalized by currents through the same circuit as that in which the motor-magnet is included.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of an instrument embodying the features of this invention, and Fig. 2 is a plan view of the same.

Fig. 3 illustrates certain details in the construction of the motor.

Referring to the figures, A represents a vertical type-wheel shaft. It is connected through a suitable train of gear, A', with a motor-shaft, b. This motor-shaft carries an armature, B, which is preferably constructed in two parts, b' and b'', and these parts are magnetically separated from each other. One pole of a permanent magnet, C, is placed in magnetic connection with one portion, c', of the armature, and the other pole of this permanent magnet gives the opposite polarity to the other arm, c'', of the armature. The section c' of the armature is constructed with an extension, e', and the section c'' with a similar extension, e''. These extensions are formed in the arcs of circles, and are preferably so constructed that their ends are slightly nearer the center of the arbor than the ends of the arms which support them. A field for the armature is formed by an electro-magnet, D, having polar projections d' and d'', curved to correspond to the general shape of the armature. This magnet is designed to be included in the main-line conductor, and reversals in the polarity or direction of the current through that conductor will reverse the polarity of the extensions of the poles, so that they will attract the respective arms c' and c'' of the armature alternately, and thus tend to revolve the armature step by step. This movement of the armature will cause a revolution of the type-wheel shaft A.

Upon the shaft A there is supported a series of radiating flexible arms, a' a' a'' a''. The arms a' a' are slightly longer than the arms a'' a''. The former carry at their extremities a series of type, f' f', which may with advantage be the figure-type, while the flexible arms a'' a'' carry at their extremities the letter-type f'' f''. The figures and the letters are thus located in arcs of circles of different radii. (See Fig. 2.) The revolution of the shaft A causes these type to successively pass over a pressure or printing roller, F, which is of sufficient width to receive both series of type. The inner ends of the alternate springs a' a' a'' a'' are preferably supported in different vertical planes from a hub, H', as shown in Fig. 1. They may with advantage be webbed together,

as indicated in Fig. 2. This construction insures sufficient rigidity, even though they be of light material.

The impression-hammer G is supported on a lever, g , pivoted to the frame of the machine. The lever carries a lug, g' , which is engaged by a latch, g^2 . The latch g^2 is carried upon a lever, g^3 , which is actuated by means of an electro-magnet, H, included in the main-line circuit. This magnet H is provided with an armature, h , pivoted at h' and connected by a link, h^2 , with an arm, h^3 , extending from the shaft or arbor of the lever g^3 . When the armature h is drawn toward its magnet, the arm or link h^2 is raised and the lever g^3 is actuated. This causes the latch g^2 to throw the impression-hammer G downward against the type-arm, a' or a^2 , which may be beneath it. The arm thus engaged yields to the pressure of the hammer, and the type carried at its extremity is thus forced downward and imprinted upon the paper passing over the pressure-roller F.

It is desirable that the press-hammer should be liberated the moment an impression has been made. This is accomplished by tripping the latch g^2 and allowing the arm G to be raised by a spring, f^3 . The latch g^2 is constructed with an extension, i , which comes in contact with an adjustable screw, i' , when the lever g^3 is actuated. The face of the extension i is curved, and as the lever advances the latch is pushed backward against the tension of a spring, i^3 , until it escapes the lug g' and releases the press-lever. The lever G immediately rises in responding to the pressure of a spring, f^3 . The spring S serves to withdraw the armature h from the electro-magnet H and to place the several levers in their normal position when that magnet is demagnetized.

For the purpose of feeding the paper forward after each impression, an arm, k , is secured to the arbor of the lever g^2 , and this carries a pawl, k' , engaging a ratchet-wheel, k^2 , attached to the arbor of the pressure-roller. Each movement of the lever g^2 , when the electro-magnet H is demagnetized, will advance the paper.

It is desirable in recording stocks and for certain other purposes that the figures be imprinted in a different line from the letters and other characters, and it is for this reason that the arms carrying the figures extend outward from the center of the type-wheel a greater distance than those carrying the other characters.

For the purpose of assisting in starting the motor after it has been arrested, a light spring, u , presses against a double cam, u' , upon the armature-shaft. The parts are so adjusted that whenever the instrument is arrested the spring will be under slight tension, pressing against one or the other points of the cam.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of a shaft, means for revolving the same, a series of radiating flexi-

ble arms, certain of which arms are of greater length than the others, a type upon each of said arms, and means for throwing any one of said arms out of its normal plane, substantially as described.

2. The combination, substantially as hereinbefore set forth, of a revolving shaft, a series of arms carried upon said shaft, a series of type respectively supported by said arms, a type-hammer for striking any one of said arms, an electro-magnet for actuating said hammer, and a paper-feeding device operated by said electro-magnet.

3. The combination, substantially as hereinbefore set forth, of a shaft, a series of movable type supported from said shaft, a motor for revolving said shaft, consisting of a permanent magnet, two armatures receiving opposite polarization from said permanent magnet, and an electro-magnet for acting upon said armatures, and means for reversing the polarity of the current through said electro-magnet.

4. The combination of a permanent magnet, an electro-magnet, an armature revolved by said electro-magnet having magnetically-separated arms receiving opposite polarities from said permanent magnet, and a type-wheel shaft revolved by the movements of said armature, substantially as described.

5. In a printing-telegraph instrument, a motor consisting of an arbor, two oppositely-projecting arms upon said arbor magnetically separated from each other and oppositely polarized, each arm having a forwardly-projecting curved extension, and an electro-magnet having polar projections constituting a field for said armature.

6. A motor for printing-telegraphs, consisting of a permanent magnet, C, an armature having extensions c' and c^2 , oppositely polarized from the respective poles of said permanent magnet, and the electro-magnet H, having polar projections constituting a field for said armature, substantially as described.

7. In a printing-telegraph instrument, a series of type-carrying arms having their inner ends supported in different planes and having their ends extending into a common plane, substantially as described.

8. In a printing-telegraph instrument, a type-wheel shaft, a series of yielding type-carrying arms or springs moving with said shaft, type at the ends thereof, an electro-magnet, its armature and armature-lever, a hammer or platen actuated by said lever for effecting impressions from said type, and a releasing device applied to said hammer, whereby it is released after an impression is effected, substantially as described.

In testimony whereof I have hereunto subscribed my name this 18th day of February, A. D. 1886.

ROBERT J. SHEEHY.

Witnesses:

DANL. W. EDGECOMB,
CHARLES A. TERRY.