May 10, 1932. A. E. JONES 1,857,642

CALCULATING AND SIMILAR MACHINE

Filed June 14, 1929 2 Sheets-Sheet 1

Fig. 1.

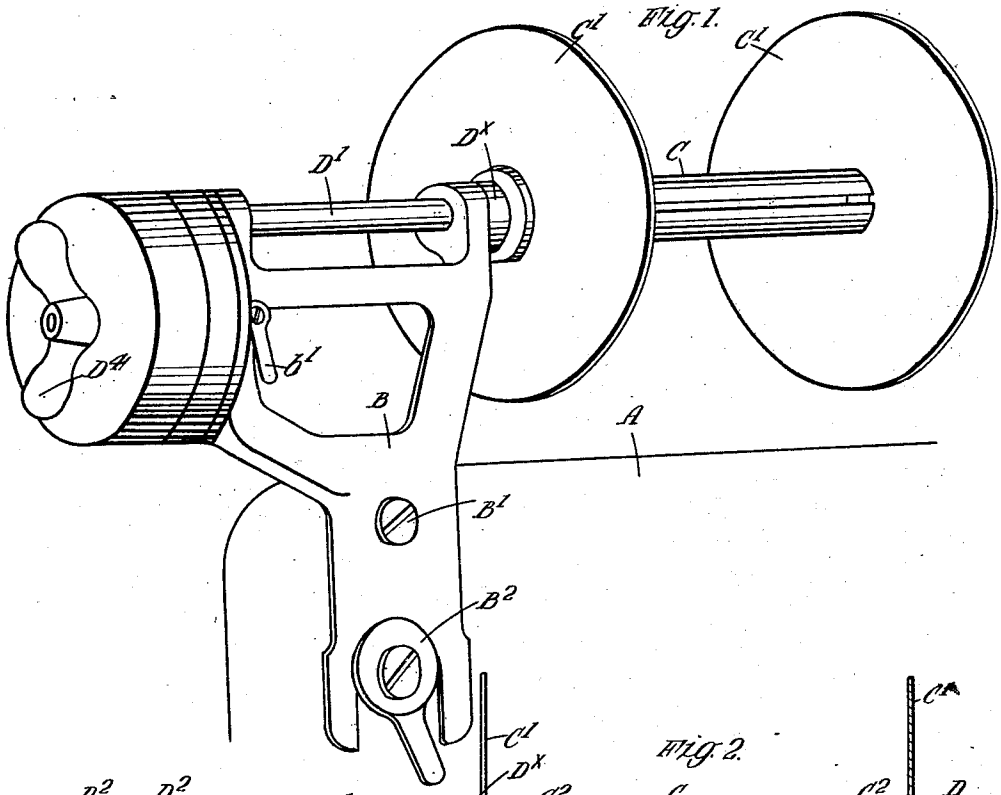


Fig. 2.

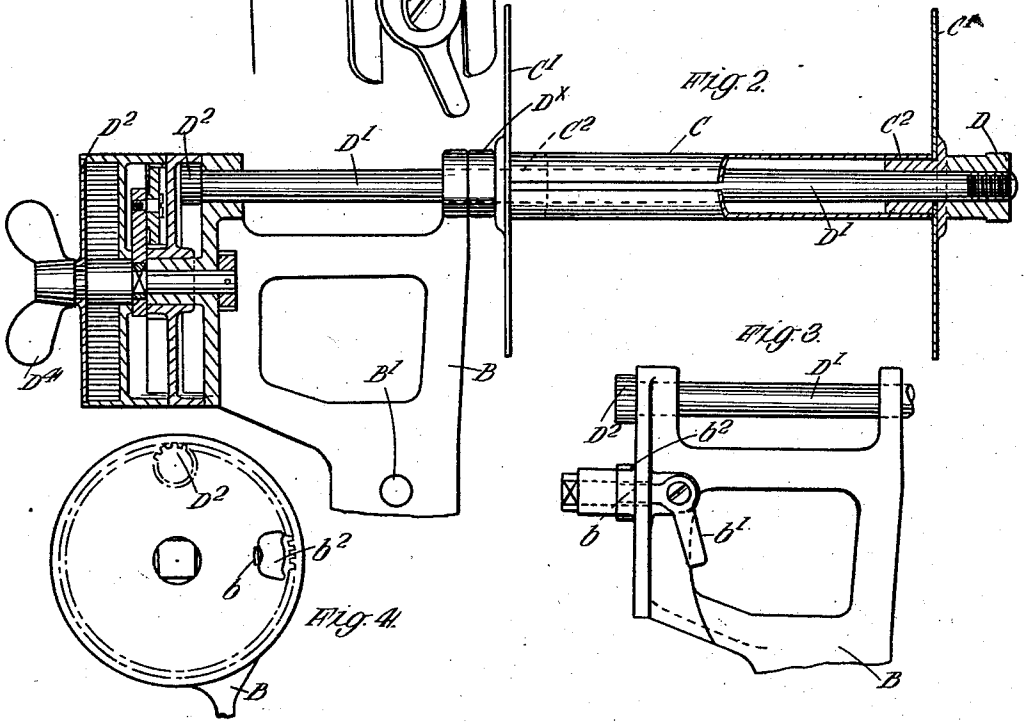


Fig. 3.

Fig. 4.

Inventor:
Albert Edward Jones
By Pennie Davis Marvin & Edmonds
attorneys.

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Fig. 5.

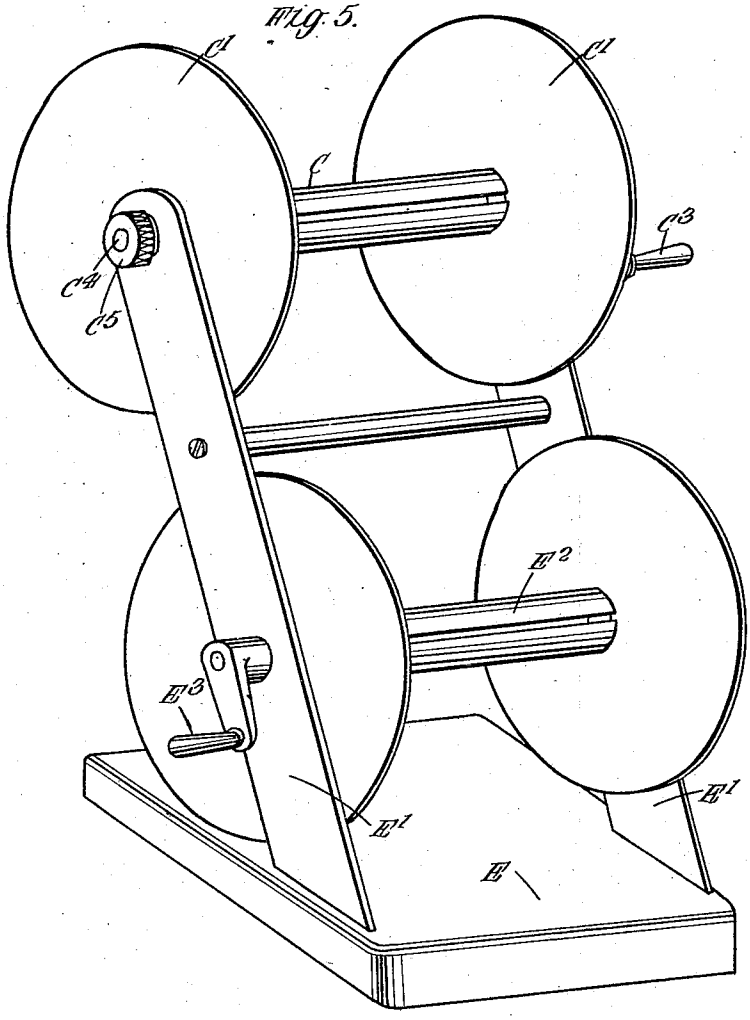
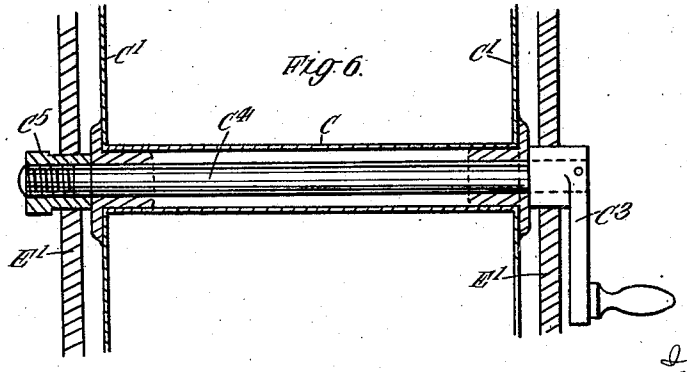


Fig. 6.



Inventor:
Albert Edward Jones
By Pennie Davis Marvin & Edmonds
Attorneys

Patented May 10, 1932 1,857,642

UNITED STATES PATENT OFFICE

ALBERT EDWARD JONES, OF WESTMINSTER, ENGLAND, ASSIGNOR TO THE WHITEHEAD TORPEDO COMPANY LIMITED, OF WESTMINSTER, ENGLAND, A BRITISH COMPANY

CALCULATING AND SIMILAR MACHINE

Application filed June 14, 1929, Serial No. 370,887, and in Great Britain December 4, 1928.

This invention relates to calculating and similar machines in which mathematical or other data is recorded upon paper which issues from the machine in the form of a long strip frequently many yards in length. Such a long strip is difficult to handle when it becomes necessary to take particulars from the data recorded thereon and the chief object of the present invention is to overcome this difficulty.

According to the invention the machine is provided with an attachment or device comprising a removable spool or roller upon which the strip of paper issuing from the machine is wound as the operation of the machine proceeds, the said spool or roller being preferably rotated by a spring so as to wind the strip of paper automatically on the spool or roller as the strip issues from the machine. When the strip has been fully wound upon the spool the latter is removed and placed in a contrivance which rotatably supports the said spool contiguous to an additional spool or roller on to which the strip is wound from the first mentioned or removable spool, in order to bring the end which first issued from the machine to the outer surface of the additional spool, the strip being then rewound upon the removable spool during which time the necessary particulars can be noted from the data on the strip in the order in which it has been recorded.

In order that the said invention may be clearly understood and readily carried into effect, the same will now be described more fully with reference to the accompanying drawings, in which:—

Figure 1 is a perspective view showing the aforesaid attachment or device in position,

Figure 2 is a sectional elevation of the attachment or device,

Figure 3 is a local view showing a detail hereinafter referred to,

Figure 4 is a side view of Figure 3,

Figure 5 is a perspective view of the separate contrivance for receiving the removable spool of Figures 1 and 2, and

Figure 6 is an axial section through the upper spool in Figure 5.

A (Figure 1) is part of the frame of the calculating or similar machine, B is an arm or bracket carried by the part A and C is a spool carried by the arm B in such a position that the strip of paper issuing from the machine can be wound thereon. This spool comprises a barrel in the form of a tube having a slit to receive the end of the strip issuing from the machine and has end flanges C′, C′ connected to bosses C^2, C^2 which fit within the ends of the tube, one of these flanges being made detachable (for a purpose hereinafter described) by constructing its boss to be a push fit in the end of the tube constituting the barrel of the spool. The spool thus constituted is detachably held in position by means of a nut D upon a spindle D′ carried by the arm or bracket B, this nut serving to grip the spool between it and a collar D^x on the spindle. This spindle has at its end remote from the nut a pinion D^2 which is driven through a suitable multiplying gearing such as that shown in Figure 2 by a clock spring D^3 which can be wound up by means of a wing member D^4, the said spring and its associated parts being carried by the arm or bracket B. Pivotally carried by the arm or bracket B there is a flat spring member b (Figure 3) having an operating handle b'; this spring member co-operates with a double pawl b^2 pivoted to the said arm or bracket and the arrangement is such that when the said spring member is moved to either side of its mid position shown in Figures 3 and 4 the pawl will be spring pressed into engagement with the internal teeth on the drum operated by the pinion D^2, whilst when the said spring member is in the mid position the pawl is held out of engagement with the teeth. In this manner the clockwork mechanism can be locked and released as required.

The arm or bracket B is pivoted at B′ to the aforesaid part A of the frame of the machine and an eccentric adjusting device B^2 is provided for the purpose of adjusting the said arm or bracket angularly about the pivot B′ so as to ensure that the spool is in the correct position for properly receiving the strip of paper. When the strip of paper has been fully wound upon the spool the nut D′ is re-

moved and the spool is withdrawn from the spindle D. The spool is then placed in position as hereinafter described in the separate contrivance shown by Figure 5 which comprises a base plate E, side plates E′, E′ and a spool E^2. The end of the strip on the spool C is then inserted into the slit of the spool E^2 and the strip is wound upon the latter spool by means of a handle E^3 with which the spool E^2 is provided. The said strip can then be rewound upon the spool C by means of a handle C^3 and during this rewinding operation the data recorded upon the strip can be noted in the order in which it was recorded in the machine. The provision of a handle on each spool enables the direction of movement of the strip to be reversed if it is desired to refer back to the data on part of the strip already rewound upon the spool C.

As aforesaid one of the flanges C′ on the spool C is made detachable so that when the rolled up strip is finished with this flange can be removed to enable the roll of strip to be slipped off the barrel and stored away with an elastic band around it to prevent unwinding. The spool C is thus free for further use.

As shown in Figure 6 the spool C is detachably mounted in the contrivance of Figure 5 in the following manner:—passing through holes in the side plates E′, E′ and through the barrel of the spool C is a spindle C^4 provided with the aforesaid handle C^3 the boss of which is journalled in one of the holes and bears against the boss of one of the flanges C′. The end of the spindle remote from the handle C^3 is screw-threaded to receive a nut C^5 having a plain cylindrical part journalled in the hole in the other side plate. By tightening this nut the spool can be gripped to the handle and spindle and on removing it the spindle can be withdrawn to enable the spool to be removed, the reverse operations being performed in placing the spool in position in the contrivance. The spool E^2 may be similarly held in position in the contrivance.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a roller for receiving the strip of paper issuing from the machine, a spindle supported at one end only, means for removably mounting said roller on said spindle, and spring operated means for rotating said spindle so that the strip of paper is wound automatically on said roller as said strip issues from the machine.

2. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a spool for receiving the strip of paper issuing from the machine, a spindle supported at one end only, means for removably mounting said spool on said spindle, means for rotating said spindle and means for detachably connecting one of the end flanges of said spool to the main portion.

3. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a spool for receiving the strip of paper issuing from the machine, a spindle supported at one end only, means for removably mounting said spool on said spindle, spring operated means for rotating said spindle so that the strip of paper is wound automatically on said spool as said strip issues from the machine, and means for detachably connecting one of the end flanges of said spool to the main portion.

4. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a bracket, a spindle carried thereby and supported at one end only by said bracket, a member on said spindle for receiving the strip of paper issuing from the machine, means for removably connecting said member to said spindle and spring operated means for rotating said spindle so that the strip of paper is wound automatically on said member as said strip issues from the machine.

5. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a pivoted bracket, a spindle carried thereby, a member on said spindle for reeciving the strip of paper issuing from the machine, means for removably connecting said member to said spindle, means for rotating said spindle and means for angularly adjusting said bracket about its pivot.

6. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a pivoted bracket, a spindle carried thereby, a member on said spindle for receiving the strip of paper issuing from the machine, means for removably connecting said member to said spindle, spring operated means for rotating said spindle so that the strip of paper is wound automatically on said member as said strip issues from the machine, and means for angularly adjusting said bracket about its pivot.

7. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a pivoted bracket, a spindle carried thereby and supported at one end only by said bracket, a member on said spindle for receiving the strip of paper issuing from the machine, means for removably connecting said member to said spindle, means for rotating said spindle and means for angularly adjusting said bracket about its pivot.

8. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a pivoted bracket, a spindle carried thereby and supported at one end only by said bracket, a member on said spindle for receiving the strip of paper issuing from the machine, means for remov-

ably connecting said member to said spindle, spring operated means for rotating said spindle so that the strip of paper is wound automatically on said member as said strip issues from the machine, and means for angularly adjusting said bracket about its pivot.

9. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a pivoted bracket, a spindle carried thereby, a spool on said member for receiving the strip of paper issuing from the machine, means for removably connecting said spool to said spindle, spring operated means for rotating said spindle so that the strip of paper is wound automatically on said spool as said strip issues from the machine, means for angularly adjusting said bracket about its pivot, and means for detachably connecting one of the end flanges of said spool to the main portion.

10. In a calculating or similar machine in which data is recorded on a long strip of paper, a device comprising a pivoted bracket, a spindle carried thereby and supported at one end only by said bracket, a spool on said spindle for receiving the strip of paper issuing from the machine, means for removably connecting said spool to said spindle, spring operated means for rotating said spindle so that the strip of paper is wound automatically on said spool as said strip issues from the machine, means for angularly adjusting said bracket about its pivot, and means for detachably connecting one of the end flanges of said spool to the main portion.

ALBERT EDWARD JONES.