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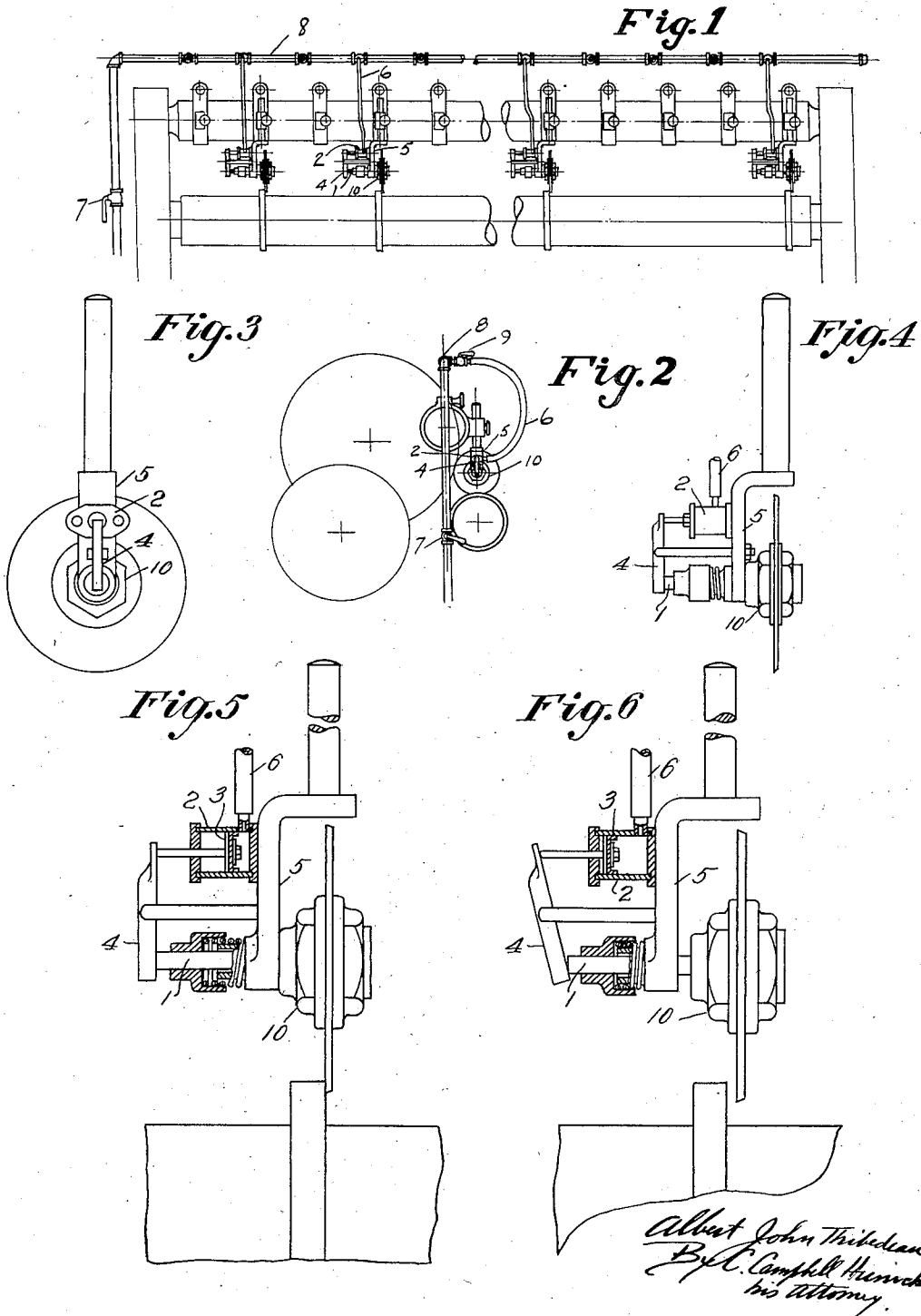
A. J. THIBEDEAU

2,043,818

PAPER MACHINE SLITTER KNIFE

Filed July 5, 1934

2 Sheets-Sheet 1



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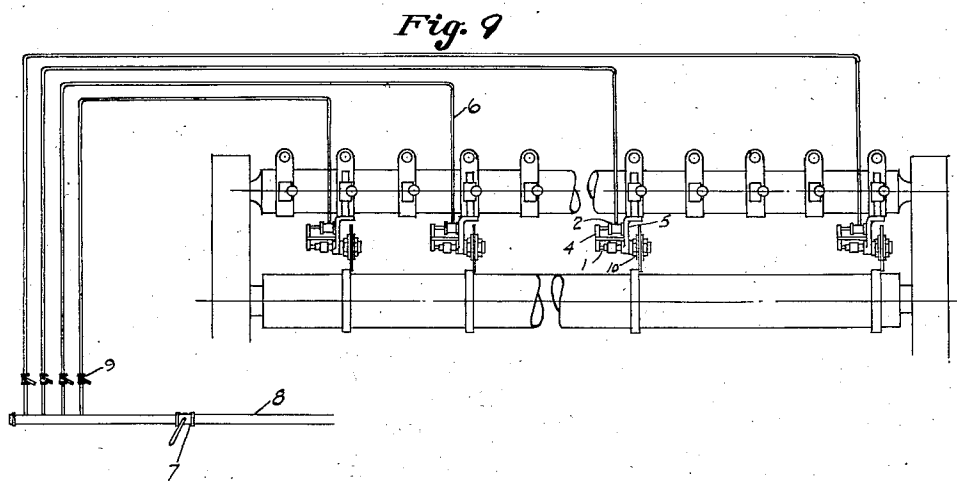
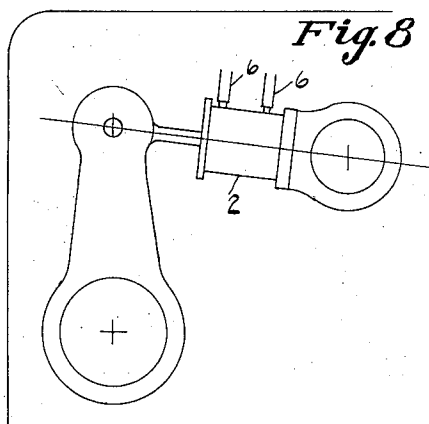
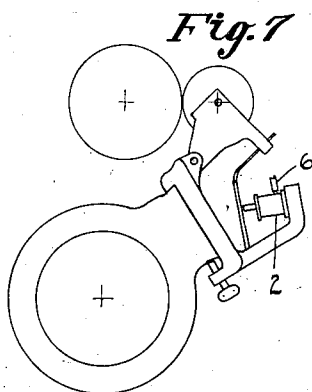
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PAPER MACHINE SLITTER KNIFE

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2 Sheets-Sheet 2



Albert John Thibedau
By C. Campbell Hume
his Attorney

UNITED STATES PATENT OFFICE

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PAPER MACHINE SLITTER KNIFE

Albert John Thibedeau, Ottawa, Ontario,
Canada

Application July 5, 1934, Serial No. 733,777

3 Claims. (Cl. 164-60)

My invention relates to improvements in machines for slitting the paper web as it is being wound or cut to size and to the regulation of this machine by remote control.

The machine or apparatus is primarily intended for use in paper machinery. As is well known the slitters at present in use in paper machines are placed in an inoperative position during the process of threading the winder or cutter by an operator pressing a wedge shaped piece of wood between the knife and top slitter support and as this block is pressed forward the wedge forces the upper and lower slitter knives apart. This practice is both dangerous and slow as each slitter knife must be handled separately, often when it is revolving at high speed. In winders which use a riding roll (a large heavy roll running on top of the roll of paper being wound and presently installed on nearly every high speed winder), the danger is increased because when the winder is being threaded with paper this riding roll is in a vertical position and the operator threading the winder must pass beneath it. In the apparatus described this adjustment of the slitter knives to the inoperative position is done mechanically and by remote control. All the knives on one machine may be adjusted at the same time or they may be adjusted individually or in predetermined groups. The invention thus reduces the time required to thread the winders and also materially reduces the hazard of accidents.

My invention has as its object the following advantages over the present practice:—

1. Increased efficiency of the winder, rewinder, cutter or other machine in which paper or other fabric webs are cut to size due to the time saved in threading the winder, rewinder, cutter etc. during the starting up of the machine and in repairing breaks in the web.

2. The elimination of manual labour from the adjustment of the slitter knives to the operating and threading positions thus eliminating part of the cost of operation and avoiding accidents that are extremely dangerous and costly in this work.

3. Increased life to the slitter knives due to their revolving freely when they come in contact with the moving web etc. as they assume the operating position.

4. Increased production from the winder, rewinder, cutter etc. and a better finished product due to keener knives and ease in winding.

To obtain these objects by the mechanism illustrated in the accompanying drawings, which are described throughout by same reference char-

acters, and which clearly disclose the alleged invention.

Fig. 1 is a plan of the complete apparatus installed on the paper machine winder.

Fig. 2 is a side elevation.

Fig. 3 is a side view of a controlling mechanism for one slitter using a cylinder and piston as the actuating part.

Fig. 4 is an end elevation of a controlling mechanism for one slitter using a cylinder and piston as the actuating part.

Fig. 5 is a sectional view of a slitter knife and controlling apparatus in one running position, using a cylinder and piston as the actuating part.

Fig. 6 is a sectional view of the slitter knife and controlling apparatus in a threading position, using a cylinder and piston as the actuating part.

Fig. 7 is a diagram showing one type of apparatus where a contact form of slitter is used.

Fig. 8 is a diagram showing one type of apparatus for the gang operation where a contact form of slitter is used.

Fig. 9 is a plan of the whole apparatus with individual remote controls as well as a control for all the knives together.

The apparatus described in the following consists of a type of mechanism which actuates a slitter of the sheer cutting type. The apparatus consists of a mechanism which actuates the movable slitter shaft (1) in a longitudinal direction either directly through levers or by some mechanical means. In the arrangement shown in the drawings (2) is a cylinder in which a piston (3) is actuated. This piston moves the slitter shaft outwards through a lever arm (4), the whole being securely fastened to the slitter bracket (5) and the actuating fluid admitted to the cylinder by means of the tube (6) running to a remote control shown in (7) Figures 1 and 2, the fluid to the actuating mechanism passes through the header (8) Figures 1 and 2 to or through individual tubes, if it is desired to control each slitter independently. The cutter is restored to its position of contact with the lower cutter in any well known manner such as by a spring between the bracket (5) and the collar on the shaft upon releasing of the remote control mechanism to permit such spring action. In the drawings only four slitters are shown and position for some others are allowed for. In practice any number of slitters and connections may be installed on a single machine and connected to a single header so that by admitting fluid pressure to the cylinders the slitter knives are forced away from the brackets and

hence away from contact with the lower knives and that the paper may be threaded through the slitter without danger of accidents.

In the modification shown in Figure 7 the pistons, plungers, etc., are actuated by a lever in such a manner that the cutters, which are pivoted on a bracket, are moved at right angles to their axes and withdrawn from contact with the lower roll cutter. In the modified form shown in Figure 8, a large single unit is used connected to a lever arm which rotates the shaft to which all the upper cutters are fastened and by rotating this shaft withdraws all the cutters at one time from contact.

In the machine described above the whole apparatus is usually operated manually by one remote control. The one remote control governs all the slitter knives and places them in the threading or in the operating position at will. It may, however, be constructed so that predetermined individual knives, or groups of knives may be actuated as desired. A modification of this apparatus shown diagrammatically in Figure 7 may be used for the contact type of machine where the actuating mechanism raises the slitter knives from contact with the revolving cylinder.

In the specifications as described above the application of the apparatus to the manufacturer of paper only is considered. However this same apparatus may be used in the manufacture of any

fabric or other web which is slit longitudinally during its manufacture.

I claim:—

1. In a paper machine, a slitter mechanism, comprising a plurality of slitter knives and power operated means consisting of a cylinder and piston connected individually to the slitter knives, for moving predetermined desired slitters from the operative to the threading positions, and vice versa and remotely controlled, substantially as described.

2. In a paper machine, a slitter mechanism, comprising a plurality of slitter knives and power operated means consisting of a solenoid and plunger, connected individually to the slitter knives for moving predetermined desired slitter knives from the operative to the threading position and vice versa, and remotely controlled substantially as described.

3. In a paper machine, a slitter mechanism, comprising a plurality of slitter knives operating under predetermined fixed pressure, means actuated by auxiliary power from a source of supply for moving predetermined slitter knives from the operative to the threading position and for returning the slitter knives to operative position under the same predetermined fixed pressure, and means for controlling said power operating means remote from said slitter knives.

ALBERT JOHN THIBEDAU. 30