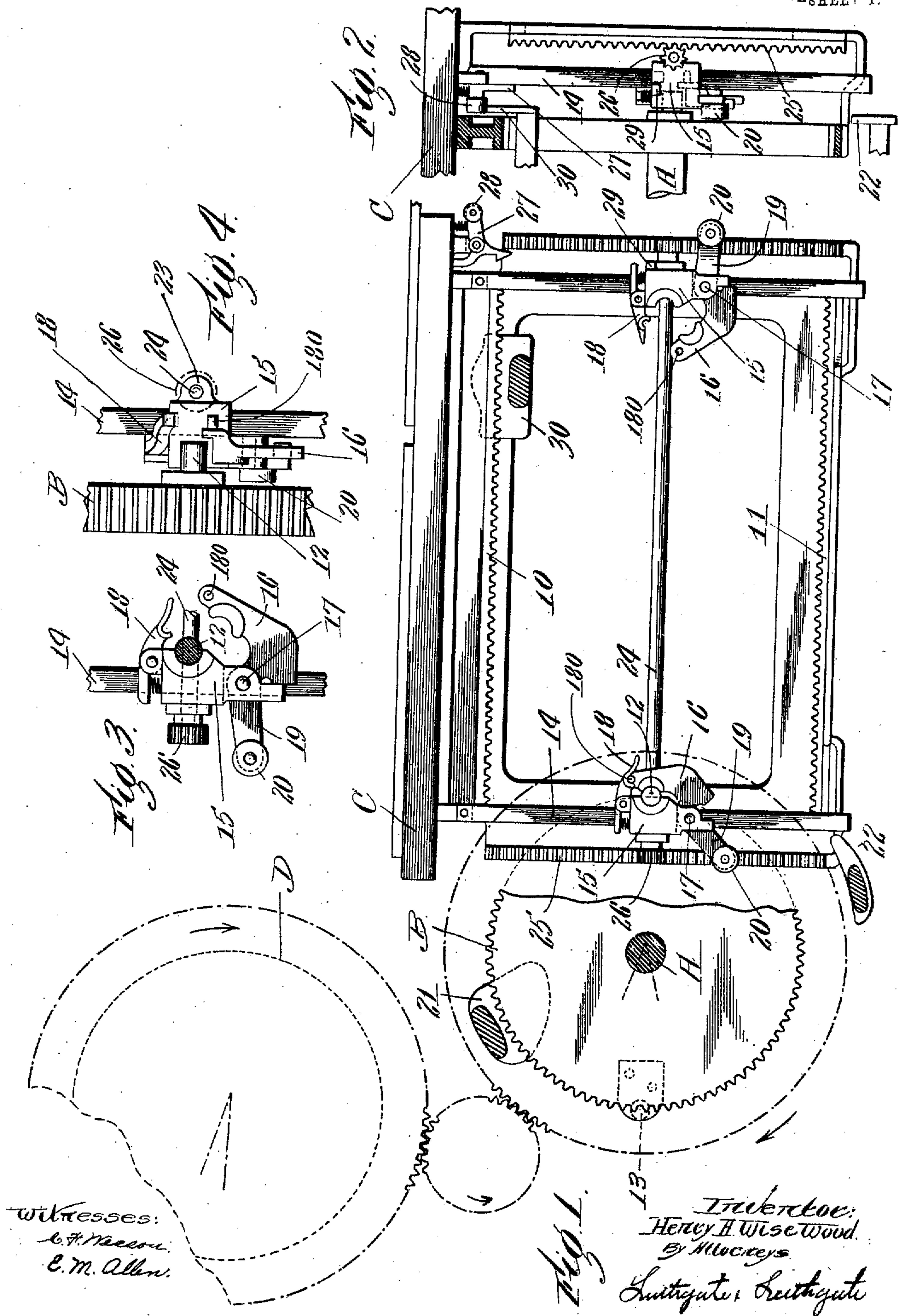


965,974.

H. A. W. WOOD.  
MECHANICAL MOVEMENT.  
APPLICATION FILED JULY 21, 1905. RENEWED NOV. 10, 1909.

Patented Aug. 2, 1910.  
8 SHEETS—SHEET 1.



Witnesses:  
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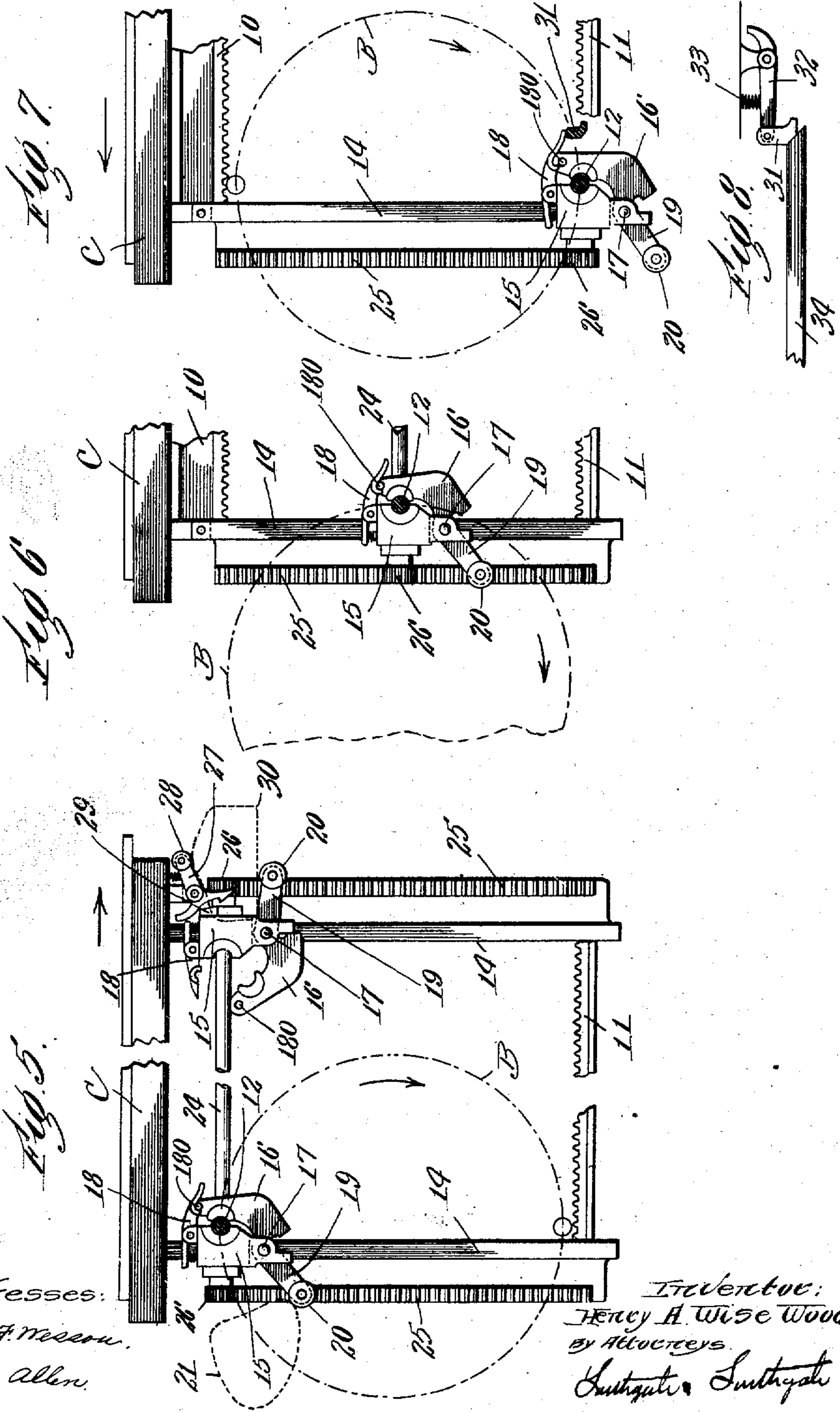
H. A. W. WOOD.  
MECHANICAL MOVEMENT.

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Patented Aug. 2, 1910.

3 SHEETS—SHEET 2.



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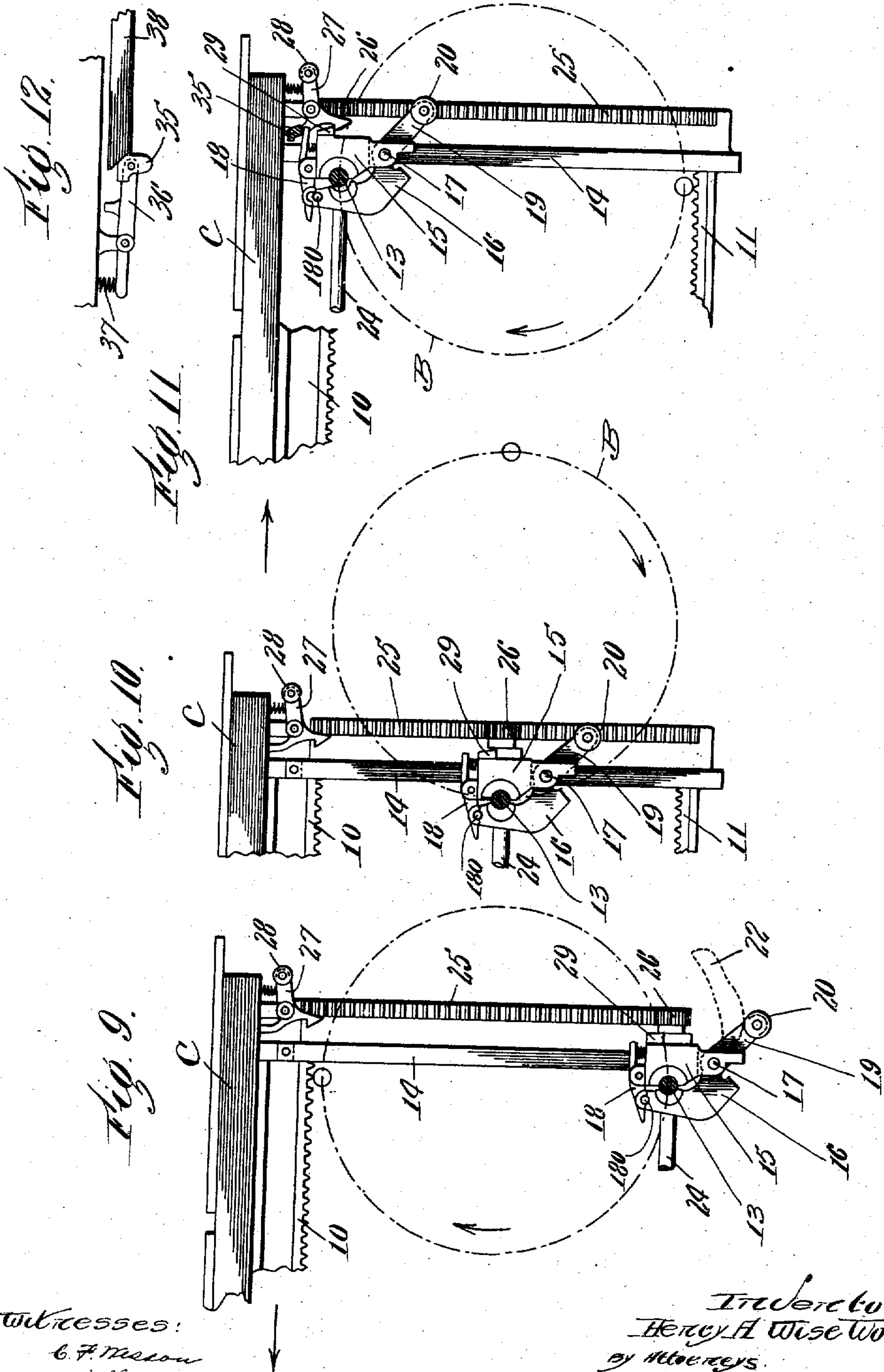
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MECHANICAL MOVEMENT.

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965,974.

Patented Aug. 2, 1910.

3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR TO CAMPBELL PRINTING PRESS & MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MECHANICAL MOVEMENT.

965,974.

Specification of Letters Patent. Patented Aug. 2, 1910.

Application filed July 27, 1905, Serial No. 271,556. Renewed November 10, 1909. Serial No. 527,304.

*To all whom it may concern:*

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Mechanical Movement, of which the following is a specification.

The object of this invention is to provide a new and improved mechanical movement for converting rotary motion into reciprocating motion. The movement has been particularly designed as a mechanism for reciprocating the beds of printing machines.

The invention has relation to that form of mechanism wherein a main mechanism for reciprocating the bed at a constant speed is combined with a reversing mechanism which slows down, stops, and starts the bed in the opposite direction.

The object of the invention is to improve that class of mechanism wherein the time of the constant speed movement equals the time of the reversing movement, and wherein the movement is designed to work on the two-revolution principle and have a half-turn crank-reverse.

In the present invention some of the parts shown in Patents No. 481,128, dated August 16, 1892; No. 559,016, dated April 12, 1896; and No. 581,839, dated May 4, 1897, granted in the name of Henry A. Wise Wood, have been employed. The mechanisms shown in these prior patents, however, were designed to operate only on the three-revolution principle. The parts shown in this case have been re-designed and re-combined to utilize the advantages of the two-revolution principle above specified.

The mechanism is illustrated in the accompanying three sheets of drawings.

Referring to said drawings, Figure 1 is a side elevation, partly in section, of the mechanism. Fig. 2 is a sectional end view. Figs. 3 and 4 are a side and front elevation of the latch mechanism on an enlarged scale. Figs. 5 to 7 are diagrammatic views illustrating the reversing action at one end of the bed. Fig. 8 is a detail view illustrating the action in Fig. 7. Figs. 9 to 11 inclusive are diagrams illustrating the reversing action at the other end of the bed, and Fig. 12 is a detail view illustrating the action in Fig. 11.

Referring to the drawings and in detail, A designates the main shaft of the ma-

chine which carries the driving gear B, which also constitutes the revolving member of the reversing mechanism.

C designates the reciprocating bed or member which has upper and lower racks 10 and 11 attached thereto.

D designates the impression cylinder of the machine which may be geared to the main shaft A in any desired way common in printing machinery.

The main shaft, driving gear, and upper and lower racks are arranged as shown in said patents to Henry A. Wise Wood, except that the racks 10 and 11 are made substantially one-half the length of a pitch circumference of the driving pinion instead of being equal to a pitch circumference of the driving pinion as in said prior patents. The main shaft is raised and lowered by any suitable mechanism, as shown in said prior patents, to engage alternately with said racks 10 and 11 to make up a main driving mechanism. Projecting from the inner face of the driving pinion are two wrist-pins 12 and 13. These wrist-pins are set 180° apart, and substantially on the pitch line of said gear. Vertical ways 14 are carried by the bed-hanger which supports the lower rack 11. Fitted to slide on said ways 14 are blocks 15. Each block 15 has a cut away socket for one of the wrist-pins to engage.

A swinging jaw 16 is mounted on a pivot 17 in each block, this swinging jaw being set to coöperate with the socket in the block to hold the wrist-pin. The swinging jaws normally tend by their weight to swing down from the socket, as shown in Fig. 3. Each swinging jaw is held in closed or operative position by a pivoted spring-pressed trigger 18 which engages a pin 180 on said swinging jaw, and holds the same in place when brought into operative position. Each swinging jaw 16 is provided with an extending arm 19 which carries a roll 20. A cam 21 is provided to operate the left-hand swinging jaw, and a cam 22 is provided to operate the right-hand swinging jaw, as hereinafter described.

The blocks 15 have bearings 23 on their rear side. Journaled in these bearings is a shaft 24 which connects the blocks together. Vertical racks 25—25 are secured to each end of the rack-hanger. Pinions 26—26 are arranged on the ends of said shaft 24, and engage said vertical racks 25—25. This will



form a squaring mechanism and will constrain the two blocks to move together up and down on the ways 14.

At the right-hand end of the bed is arranged a spring-pressed trigger 27 which has an extending arm carrying a roll 28. This trigger is arranged to engage a catch 29 on the right-hand block 15 so as to hold the blocks in their highest position. This roll 28 is set to cooperate with a stationary cam 30. To release the trigger 18 mounted on the left-hand block 15 from its engagement with the pin 180 mounted on the swinging jaw 16, a projection 31 is secured on a lever 32 pivoted to the rack frame, as shown on enlarged scale in Fig. 8. The projection 31 is forced downwardly by a spring 33. A stationary cam 34 is placed to operate the projection 31. These parts are arranged so that as shown in Fig. 7, the projection 31 will be lifted by the horizontal movement of the bed to the left to release the trigger 18, and to allow the swinging jaw to fall down clear of the wrist-pin. This construction of the projection is preferably employed to operate from the horizontal movement of the bed, as the vertical component of the movement of the wrist-pin at the time the same should be released is small. Similarly the trigger 18 of the right-hand block is released by a projection 35 mounted on a pivoted lever 36 controlled by a spring 37 and operated by a cam 38 as shown in Fig. 12.

The operation can be followed by referring to the diagrammatic views.

Referring first to Fig. 5, the driving gear B is shown in position where it just leaves the upper rack 10, and the main driving mechanism as becoming inoperative. In this position of parts the wrist-pin 12 has engaged the left-hand block, and the swinging jaw 16 on said block has been brought into operative position by its roller running on the cam 21. As this operation takes place the trigger 27 is released from the right-hand block 15 by its roll 28 running on the cam 30. Now as the wrist-pin makes a quarter turn from the position shown in Fig. 5, to the position shown in Fig. 6, the bed will be retarded and brought to a state of rest at its right-hand extreme. Now during the next quarter revolution of the wrist-pin 12 the bed will be started from its extreme right-hand position and brought up to its constant speed forward movement to the left, bringing the parts to the position shown in Fig. 7. When the parts reach this position, the swinging jaw of the left-hand block 15 will be released by the projection 31 as before described, and the driving-gear B will engage the lower rack 11 and start the bed on its constant speed forward movement to the left. This constant speed or forward

movement is shown as just completed. In this position of parts the right-hand block 15 will have engaged the wrist-pin 13 and the swinging jaw on the right-hand block will have been brought into and locked in operative position by its roll working on the cam 22. This will lock the wrist-pin 13 to the bed. Now during the next quarter revolution of the wrist-pin 13 the bed will be retarded and brought to a state of rest at its left-hand extreme, as shown in Fig. 10. Now during the next quarter revolution of the wrist-pin 13 the bed will be started on its return movement to the right at a speed gradually increasing from zero up to the constant speed. This will bring the parts to the position shown in Fig. 11, where the swinging jaw on the right-hand block will be released by means of the operation of the projection 35 before described. This will release the wrist-pin 13 from the right-hand block 15, and as this operation takes place, the driving-gear B will engage into the upper rack 10. As the blocks assume their upper position, as shown in Fig. 11, they will be locked and held in their upper position by the trigger 27. Now during the next half revolution of the driving-gear the bed will be given its constant speed right-hand or return movement by the engagement between said driving gear B and the upper rack 10. During this constant speed movement the blocks will be locked in their raised positions, so that when this movement is completed the parts will assume the position shown in Fig. 5, completing the cycle. The blocks 15—15 thus remain in their highest position for the constant speed return movement, and in their lowest position for the constant speed forward movement. By this arrangement the mechanism can be designed to work on the two-revolution principle as hereinbefore pointed out.

The details and arrangements herein described may be greatly varied by a skilled mechanic without departing from the scope of my invention as expressed in the claims.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism for giving the same its constant speed movements, and a reversing mechanism comprising two wrist-pins mounted on a revolving member, blocks mounted to move on said bed, and means for engaging the wrist-pins with said blocks.

2. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism for giving the same its constant speed movement, and a reversing mechanism comprising two wrist-pins mounted on a revolving member, blocks

mounted so as to be capable of vertical movement on the bed, a squaring mechanism connecting said blocks to move together, and means for locking the wrist-pins to the blocks.

3. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism for giving the same its constant speed movements, and a reversing mechanism comprising two wrist-pins mounted on the same revolving element, blocks mounted so as to be capable of vertical motion on the bed, swinging jaws for locking the wrist-pins to said blocks, and means for holding and releasing said swinging jaws.

4. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism for giving the same its constant speed movements, and a reversing mechanism comprising two revolving wrist-pins, blocks mounted so as to move together vertically on said bed, means for engaging the wrist-pins with said blocks, and means for holding the blocks in raised position during the constant speed movement of the bed in one direction.

5. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism for giving the same its constant speed movements, and a reversing mechanism comprising two revolving wrist-pins, blocks mounted so as to move together vertically on said bed, a swinging jaw arranged to coöperate with each block, stationary cams for throwing said swinging

jaws into operative position, triggers for holding the jaws in operative position, and means for releasing the triggers.

6. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism for giving the same its constant speed movements, and a reversing mechanism comprising two revolving wrist-pins, blocks mounted so as to move together vertically on the bed, swinging jaws coöperating with said blocks, a trigger for holding the blocks in their raised positions during one constant speed movement, and means for releasing said trigger.

7. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism for giving the same its constant speed movements, and a reversing mechanism comprising two wrist-pins, two blocks connected to move together vertically on said bed, means for locking the wrist pins to and for releasing the same from said blocks, a trigger connected to hold the blocks in raised position for a constant speed movement, the parts being arranged so that each constant speed movement and each reversing movement will take a half turn of the wrist-pins.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

H. A. WISE WOOD.

Witnesses:

ANNIE B. WALTERS,  
W. K. STETSON.